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JANUARY, 1927

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The material for the BULLETIN is largely derived from service sources and its interest and value are correspondingly dependent upon the number and character of the reports received by the Office of Naval Intelligence from our own officers. In this connection the observations of officers afloat are of great value, particularly if the reports rendered are drawn up in accordance with existing intelligence instructions.

While political and economic information is undoubtedly of much use, the collection of military information should come first in the intelligence work of cruising ships.

NOTICE

The contents of this number of the BULLETIN are based upon information received in the Office of Naval Intelligence between November 21 and December 26, inclusive.

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CONFIDENTIAL

O. N. I. MONTHLY INFORMATION BULLETIN

VOL. IX JANUARY, 1927 No. 7

ARGENTINA

A. NAVAL

1. Main battery guns of "Rivadavia."

The commission from the Chamber of Deputies appointed to investigate the alleged deficiency in the 12-inch guns of the *Rivadavia* has just returned from Puerto Belgrano, where they witnessed the firing of the guns.

A representative of the commission informed the press that the guns were tested by firing in accordance with the wishes of the commission and that they passed all tests, which were most extreme, and that nothing out of the ordinary developed. The commission stated that happily "any abnormality had disappeared, through the technical work of our naval officers."

In two of the turrets five charges were fired from each gun, the last ones being 15 per cent overcharge.

NOTE.—In September last the press reported that certain faults had been detected in the 12-inch guns of No. 2 turret—apparently strictures in the bores of those guns.—ED.

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2. Fleet activities.

[Source: Argentine press]

The plans for the yearly evolutions of the fleet have been completed, according to information received from the general staff of the navy, and this year the battleship *Rivadavia*, recently modernized, will take part. Because of coal shortage, the cruiser *Belgrano* will not belong to the group this year, but will be replaced by the battleship *Moreno* (oil burning). Rear Admiral Renard, in command of this division (division of instruction) gave an account of the preliminary practice which took place in the vicinity of Mar del Plata, and in which the *Rivadavia*, the *Belgrano* and *Garibaldi* and a group of minor boats took part. Torpedoes were fired from the *Rivadavia* for the first time.

Before the final firing, the *Rivadavia* and *Moreno* will probably go to Golfo Nuevo, where the torpedo practice will be repeated.

It is expected that both the Minister of Marine and the President of the Republic will be present on the flagship of the fleet during the final maneuvers.

NOTE.—In these maneuvers the two battleships are to be supported by three torpedo boats, these five units forming the backbone of the effective naval force.—ED.

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3. Construction under new program.

It has been reported that, of the new vessels for the Argentine Navy, the submarines are to be constructed in France; the cruisers in England; and destroyers and submarines by a German company operating in Italy.

The project of immediate construction, so far as is known, considers only two cruisers, two destroyers and three submarines. It is not known just what reliance may be placed, therefore, on the information regarding the construction of submarines in France.

The reason given for the purchase of the cruisers in England where they would probably be of 50 per cent greater cost than Italian construction, was political and economic—that since England was the best purchaser of Argentine products, the Argentine felt that they should in some way show their appreciation.

NOTE.—See the November and December BULLETIN for details of the construction program. Briefly it consists of three cruisers, six destroyers, six submarines, various river craft, and improvement of naval bases. An Argentine Naval Mission is in Europe. Prospects for American contracts under this program are not very brilliant for the reason given above.—Ed.

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4. Argentine Government oil tanker.

The new Argentine oil tanker *Ministro Frers* was launched recently at a shipyard at Bordeaux, France.

This vessel is being built for the Argentine Government. It has 10 tanks; capacity 10,000 tons of oil. It is being fitted with accommodations for 36 first-class, 10 cabin, and 18 third-class passengers. It is constructed on the Isherwood system. The loaded displacement is 16,850 tons.

Oil cargo will be handled by 4 pumps, each with a capacity of 300 tons an hour. The propelling machinery consists of two triple-expansion engines, designed to give 12½ knots with 4,500 horsepower, at 80 revolutions.

Steam will be supplied by four oil-burning boilers equipped with the Howden system of forced draft. The keel was laid on the 18th of November, 1925.

5. New powder plant.

The Argentine Government has requested bidders to present proposals for the construction of a powder plant to be built near Buenos Aires. About a year ago similar proposals were submitted, but rejected by the Minister of War, who stated that the bids did not comply with the specifications.

The Dupont and the Nobel (English) companies are expected to bid. It is understood that these companies have an agreement regarding the bid to be submitted, and that whichever one is successful in the bid, the other one will be given a certain amount of the construction work.

It is possible that German and French bidders will also submit proposals. It is understood that the German company is Koln Rottweil and the French company is Poudrie de Luxembourg.

NOTE.—The above is another indication of the increasing activity and enlargement of the naval and military forces of Argentina.—Ed.

---

6. Argentine naval scholarships in Paraguay.

Information has been obtained that the Minister of War of Paraguay announced that the Argentine Government has granted several naval scholarships to Paraguayan naval officers. It is understood that the scholarships will be free of expense to Paraguay.

At present there are one Paraguayan officer and two cadets taking a course in the Argentine naval academies and 15 apprentices taking courses in the Argentine Naval Mechanic School.

B. AERONAUTICAL

1. Construction of airplane manufacturing plant.

The national airplane factory in the city of Cordoba will soon be inaugurated.

This means an official establishment destined, first, to provide aircraft and accessories for military bases and aeronautic units in the country, to-day procured from abroad; and second, to construct other types of airplanes for civil aviation. The Minister of War is much interested in this project, as shown by his creating of a department for this in the aeronautic service of the army.

The airplanes thus constructed will be land machines; afterwards it is intended to build hydroplanes.

The factory will make motors, propellers, and bodies; in a word, everything; and in this respect the Government will make arrangements with the various patentees regarding the use of the different types of motors, etc.

In order to be present at the inauguration, a squadron of seven Breguet planes, 450 horsepower, will leave the base at El Palomar

for Cordoba. It is interesting to note that this is the first time that such a large military squadron has made a flight of this nature in the country.

Brig. Gen. Augustín P. Justo, Minister of War, estimates that within a year the first flight in an Argentine made plane will be realized. The present plan is to assemble Lorraine Dietrich motors (whose patent the Government has acquired) during the first year; during the second, to assemble and fit the motors; and in the third, to make planes of the Breguet type, now in use and proving very satisfactory.

C. MISCELLANEOUS

1. Balance of payments of the Argentine Republic.

The following information is taken from an article written by Mr. C. A. Tornquist, who is reputed to be the most progressive and best-informed banker in the Argentine:

"Our orientation in commercial policy ought to be on the line of according advantages in the matter of imports to those countries which consume our products. England and the principal nations of the Continent of Europe, who buy our production on a large scale, ought to be favored, whilst the United States, from whom we receive the largest quantity of imports, places obstacles in the way of the entry of our principal products. This difference in treatment on the part of different countries ought to guide our commercial policy in the sense of obliging the United States either to remove the obstacles or to encounter similar difficulties, as regards the importation of her own products into Argentina."

---

2. "South America Threatened."

Under the above title, the Standard recently contained an editorial, the last two paragraphs of which are quoted below:

The problem of the Pacific is not merely a Latin-American nor yet American problem. It is wider than the ocean itself and quite as deep. None of the Americas can possibly have such an interest in the Pacific Ocean as Australia, for example, has. What concerns the dominions of the south must concern the mother land of the north and her big daughters of the same hemisphere—America and Canada. Then there is Japan, a purely great Pacific power, a naval and military power with well-recognized interests in the Orient and on every sea. No move on the part of any eastern power toward the coasts of the Americas could be "viewed with indifference" by Washington. That is very clear and equally certain. The "eminent jurist" who thinks that Japan is contemplating the seizure of internationalized territory as soon as possible is, we venture to think, more candid than eminent. Japan has no more intention of adopting an aggressive policy toward America than Argentina has of attacking Russia or Mars. If war ever should come about between America and

Japan, it will be on an issue not peculiar to Latin America. If America sought to bring China under Old Glory or to subjugate the island empire, there would be trouble, but not on the western slope of the Andes. It would be a war waged for a principle as wide as the predominance of a race, and it would be fought out much nearer to the Philippine Archipelago than either Peru or Bolivia. It would also be a very unpractical war, because in case of victory for either very little could result for either; Japan might have to pay a war indemnity—on paper—but America would have to collect it, and the game would not be worth the candle. As for the very unlikely chance of a Japanese victory, it could only follow the complete ruin of America and the exhaustion of Anglo-Saxon resources, the humiliation of the white races, who are not yet prepared to suffer Mongolian supremacy.

The position between the western and eastern nations is too well known to need any elaboration—which might give offense. The rival races, as we may call them, are very much the same as rivals for trade in the world's markets. They will strain every nerve for supremacy, but they will not put too great a strain on any nerve or provoke neurasthenia by maintaining the strain near snapping point. In other words, they will compete intensely without fighting or war. That is principally because they are very well aware that, whilst victory may be something to boast of, trade with a broken country is not anything to write home about. In order to obviate a clash between the races England and America are following, not openly but quietly, a plan of action in the East. The naval base at Singapore is not merely a British aspiration. Neither is America's base in the Philippines entirely an American aspiration. To be complete, as a measure of prophylaxis, these bases must be so organized as to be impregnable in the naval and military meaning of the word.

NOTE.—"The Standard" is the British owned and controlled newspaper of Buenos Aires. It caters strongly to British interests in preference to others. It is printed in English.—ED.

BRAZIL

A. MISCELLANEOUS

1. Japanese immigration to Brazil.

[Source: Editorial, "Jornal do Brazil"]

Those interested in Japanese immigration to Brazil are open to congratulations. In the first place, the new President of the Republic while president of the State of São Paulo, assisted the entrance of sons of the Imperial Rising Sun; and Mr. Lyro Castro, the new Minister of Agriculture, in an inquiry made of him around the first of this year at the National Society of Agriculture—of which he is president—stated that the most worthy opinion, from practical knowledge of the subject, was that a large majority favored Nipponic immigration.

All this indicates that from now on it will be easier to make conventions for such immigration.

Beyond these facts, shortly after the commencement of the Republic, in 1892, Congress went on record as being interested in yellow immigration, and voted for a project which afterwards became law No. 97, sanctioned by Marechal Floriano Peixoto. Article I permitted the free entrance of Japanese, while Article II stipulated that there might be made a treaty of commerce, friend-hip, and peace with that country. Another article directs that there be established in China and Japan diplomatic and consular agents to maintain good relations with these two nations, and that these agents were to be instructed especially to supervise immigration and avoid abuses on all immigrants that these countries chose to send us.

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2. *Argentine armament.*

[Source: Editorial, "Jornal do Brazil"]

The voting of new credits for the military expenses of Argentina is the result of a program which Mr. Marcello Alvear has been following out strictly, notwithstanding the declarations made by those who were against it in the conference at Santiago. Educated in diplomacy, the President of Argentina knows the value of military power in the conquest of political ascendency. His Excellency is excessively fond of the fascination and brilliancy of hegemony. This is proved by his attitude in the home policy of Argentina and, above all, in the direction adopted by him in his foreign policy. This does not, however, prevent him from also giving value to idealistic demonstrations. Between the words of reconciliation and acts of war preparation there does not necessarily exist any inconsistency.

We do Mr. Alvear the justice of thinking that his program is meant for the development of Argentina and does not contain any aggressive intention. The increase of armaments, however, always forces the military development of other countries. From thence to the steeplechase of armed peace, the distance is short, and there is no separation.

Just at present telegrams tell us of new credits voted by the Argentine Congress. Some years ago a commission of 40 officers presided over by General Maglione initiated a series of contracts for the reequipment of the entire Argentine Army, utilizing the credits already voted after the conference at Santiago, which at the rate of exchange of that time, as demonstrated by the Jornal do Brazil, amounted to 1,000,000 contos. The strategic railway system to our frontier will soon be terminated. It will consist of four railway lines of broad gauge, on a plan begun in 1910, which without delay or change is being put into execution with energy and tenacity.

Now the Argentine Congress approves a credit of 75,000,000 pesos (gold) for modernizing and increasing the navy of the country. As can be read in the telegrams, this credit tacitly annuls the decree signed on May 10 last which authorized expenditure to the amount of 34,000,000. It happens, however, that in view of this credit of 34,000,000 various expenditures were initiated in Europe under the direction of a naval commission. These expenditures already made shall be honored. Practically, therefore, to the new decree of 75,000,000 should be added portions of the 34,000,000 voted in May. We have, therefore, an even greater expenditure which shows in a more serious light the opening of credits for remodeling the navy.

While Argentina is working so assiduously at her military preparation, Brazil goes backward in this sense. The actual situation of our armed forces is unbelievable.

Regarding war material we never before had so little nor of such bad quality. But we should not lament the situation of the nation because in an American country there is no worse way to use money than in the purchase of armament. We are new countries that have formidable problems to solve, upon which depends the prosperity of the laboring population. Military expenditure represents the spending of public moneys for other purposes than productive and collective ones. But if all the countries do not think as we do, if about us we see countries which day by day improve their armed forces, what shall we do? What can we do but ask the Government of the country not to abandon or neglect our means of defense?

NOTE.—The "Jornal do Brazil" is a conservative and excellent daily of Rio de Janeiro. The effect of Argentine activity as given in the November and December BULLETINS and under "Argentina," above, can be seen from this article.—ED.

FRANCE

A. NAVAL

1. Distribution of fleet in 1927.

The Minister of Marine is asking for the sum of francs 1,805,000,000 for the naval appropriation for the fiscal year 1927.

It is contemplated that the remaining units of the 1922 program will be commissioned during 1927. Also several units of the 1923 and 1924 programs will be commissioned during 1927.

This will put the following units, composing the postwar fleet, in active service:

Light cruisers	5
Destroyer leaders	6
Torpedo boats	18
Submarines	23

It is proposed to condemn the following old units during 1927:

Cruisers	3
Torpedo boats	11
Submarines	9

The composition of the Mediterranean Fleet and Channel Fleet will remain as at present, except for the addition of the new units.

It is considered that the situation in Morocco will be sufficiently cleared up to permit the return of the four ships at present cooperating with the Spaniards.

The gunboats stationed in the Red Sea will be withdrawn from these waters. The division in the Levant will be reduced from five to three units.

The division in the Orient will be maintained at present strength. One gunboat will be stationed in the Atlantic, Pacific, and Indian Ocean.

---

2. *Joint exercises of the Mediterranean forces.*

PLAN

The official plan was as follows:

The combined exercises (army and navy) carried out recently had, for their object, the study of the defense of a sector of the Mediterranean littoral against an enemy force in control of the sea and about to undertake active operations to land a detachment.

The littoral has for its defense the coast batteries, pursuit planes, and bombing planes, as well as the army troops stationed in the vicinity. A dirigible, a captive balloon, and hydroplanes are charged with the surveillance of the sea approaches, while the surveillance of the coast approach is confided to a flotilla of gunboats, chasers, mine sweepers, a submarine division, and two battalions assigned specially for this duty.

The attack on the littoral is made by a division of four battleships, one light cruiser, one destroyer leader, two torpedo divisions, one submarine division, and one hydroplane squadron.

The exercises comprise, before the landing of the detachment, the reconnaissance of the coast, and the diverting of the enemy troops at various points. The landing and advance of the detachment is supported by the ships' batteries.

EXECUTION

The commander of the Blue Fleet (national) carrying out operations of war to the west of the Aude, in the region of Toulouse, against an enemy coming from the south, is informed that a naval division of Red (enemy) is sighted off the coast, to the east of Corsica, and is headed toward La Nouvelle to attempt to effect a landing at an unknown point.

The mission of Red is to attack the Blue force from the rear, or on the left flank, with a view to cutting his communication with the interior of the country and to force him to take defensive positions.

The plans of Red being known, the commander of Blue communicates with the Sixteenth Army Corps, who marches on the left wing between Villefranche and Castelnaudary, to seek contact without delay with enemy troops landed and to hold the crest of the heights of Massif de la Clape until the arrival of reenforcements, the use of

which may be necessary to stop the activities of the enemy and drive him to the sea.

In execution of this order the general commanding the Sixteenth Army Corps ordered:

(*a*) The Third Division (General Cazals) to bring his forces into the region of Narbonne with all possible haste, in such a manner that the advanced troops be in a position to survey the Mediterranean coast the 3d of August at daybreak.

(*b*) Division artillery to take position in the region of Salle-Fleury, Vinassan, Armissan, in readiness to support the progress of Blue's troops advancing on The Clape.

To complete his range of survey of the coast, the general, commander in chief of Blue, installs his observation posts from La Nouville to Cerbere, with instruction to get in communication direct with Admiral Fatou and the generals commanding the sectors.

On 3d August at dawn Red Fleet, which darkened ship during the night, shows up 3 miles from the Rocks de St. Pierre and effects a landing without meeting resistance. The coast batteries being considered out of action in the scheme are only replaced by a few groups of light artillery (155 and 75 mm. guns).

The landing commenced at 5.10 a. m. by a machine-gun company from the *Jean-Bart*, under command of an ensign; in succession the landing companies of the other ships (*Paris*, *Breagne*, *Courbet*), reinforced by troops of the Eighty-first Infantry, debarked.

The timid defense displayed by Blue's troops did not stop the dash of the attacking forces, who, regardless of a few salvos of machine-gun fire, succeeded in capturing the first crests in the neighborhood of the beach. Notwithstanding the fire of the defense batteries and aerial attacks, the attacking troops succeeded in consolidating their progress.

To thwart the success of Red, the forces of Blue, after having reinforced their units, executed, the morning of August 5, an offensive movement against landing detachments and troops of the Eighty-first Infantry intrenched in their positions obtained the preceding day and strongly supported by the guns of the squadron.

But notwithstanding the fire of the covering forces and the defense of the improvised lines, the landing detachment, under pressure of Blue forces, discontinued the combat and made a strategic retreat toward their ships.

The right of Red created at this moment a diversion and counter-attack with the troops of the Eighty-first Infantry, but Blue increased pressure, forcing the troops to seek shelter on board the ships of the squadron under the protection of their aerial forces.

Notwithstanding the offensive of Blue, the embarkation was carried out, and at 10 o'clock the troops were aboard ship.

For the defense of the coast the following took part: 6 hydroplanes; 5 pursuit land planes, Dewoitine, from Palyvestre; 4 Goliath bombing planes from Pierrefeu.

The two airplane squadrons had the aerodrome of Llabanene as headquarters; the six hydroplanes had headquarters at Ligean. In connection with the combined maneuvers the Préfecture Maritime at Toulon issued the following communication:

The first day has been devoted to attacking the Blue garrisons of the littoral, which the squadron bombarded after having traversed the mine fields and neutralized the attack of the coast defense submarines. The landing exercises were effected at Cette.

The second day, which consisted of a landing on the open beach and which fully succeeded, presented an unforgettable spectacle. All air forces, put on the alert by a dirigible, conducted a mass attack against the troops that the Red squadron landed during the night on the beach to the north of the port of La Nouvelle. The airplanes conducted an attack with machine-gun fire and bombed the units of the landing detachment while debarking. The squadron aligned in front of the beach replied with their battery and dispatched bombing hydroplanes. After a bombardment by the battleships, of the garrisons in the vicinity, the defensive troops, immobilized during the day, were declared in a state of inferiority, and the landed troops consolidated their advance during the night of August 4.

The third day was devoted to the study of a counterattack by the defense. The latter utilized the night to assemble their forces and to prepare a vigorous counterattack. This was executed under cover of a new mass attack by the coast aviation units. It gave to the troops of both sides the occasion to display their maneuvering qualities in a region very favorable to defilements, though rather incommode, due to lack of good roads and rough terrain.

The object of these exercises was to put the personnel and the naval units of the defense of the littoral of the fifth maritime district (Toulon) and the Mediterranean Squadron, the troops of the Sixteenth Army Corps, and army and naval aviation in contact with each other during a debarking of troops.

The exercises also sought to establish in what measure the action of each military arm of national defense could augument or support the other arms of the service, as well as to study the practical rôle of aviation and radio in the liaison of naval and army forces.

The operations were directed by Vice Admiral Fatou, who was embarked on board the gunboat *Diligente*. Red force was under the command of Vice Admiral Violette, commander in chief of the Mediterranean Squadron; that of the defense (Blue) under the command of General Cazalis (assisted by Rear Admiral Picot, commandant of the navy at Marseille).

CONCLUSION

The Journal des Débats published, under the signature of René La Bruyère, the following article on the maneuvers on the coast of Languedoc:

THE COMBINED EXERCISES OF THE MEDITERRANEAN FLEET

The Mediterranean Squadron carried out this month combined exercises with the Sixteenth Army Corps in the region of Narbonne.

In general, the maneuvers were a great success. The landing troops, together with detachments from the ships, debarked at dawn on the beach at Saint-Pierre, at the foot of the heights of La Clape, in very good order.

In the opinion of the chief umpire, the aviation demonstrations were particularly remarkable, and the planes gave a good account of themselves. To complete the illusion, they set fire to brushwood on the heights, which gave a tint of real warfare, without damaging the terrain.

These maneuvers are excellent for training the coast defense, as well as for the landing detachments. We must not get the impression that such an undertaking, even with a surprise attack, is an easy matter. With modern weapons in use, and especially with submarines and airplanes, an attempt to debark becomes more and more hazardous; certainly, with the provision that the defenders are equipped with sufficient weapons. This is the reason why a plan for coast-defense protection is being worked out.

Fortifications as a means of coast defense, except near the large seaports, have passed their usefulness. It is to the floating mobile forces, or planes, that we must look. Their action would be well supported, in course of time, by the intervention of heavy mobile artillery and by field troops, the rapid transfer of which to the point of the coast that is attacked can be easily developed in time of peace.

It is easy, under such conditions, to insure the inviolability of our coasts. The real protection is on the sea, by means of our fleet.

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3. Visit of Japanese squadron to Toulon and Marseille.

The following is taken from one of the leading maritime papers in France:

The Japanese naval division which visited French ports (Toulon and Marseille) was extended a particularly cordial reception.

Admiral Yamamoto, officers, and cadets were received in audience by the Minister of Marine and Minister of Foreign Affairs. There were plenty of dinners and plenty of toasts.

In former years we were only amiable and courteous, nothing more. This visit we covered them with favors and special attentions. Why? Has something new developed? Are we coming closer to Japan, and for what reason? This is the mystery of our foreign policy.

In any event Japan is becoming a nation of the first rank. We know the value of her army. The navy is its equal in strength, organization, and preparedness.

The Washington agreement accorded Japan a tonnage of 350,000 against 500,000 to England and the United States; but since the war that the Japanese Admiralty, more than anyone else, is persuaded that ships of the line are a dead issue, and that the future belongs to rapid surface craft and submarines.

Above all, the submarine has been kept to the front in Japan. Since the war the cruising submarine has been built; several of them must be in commission, but the Japanese press is of such a discreet nature that it is difficult to get precise information on this point.

We do not know but that the end in view is to obtain submarines of long radius to cruise away from their bases—to the coast of America, for instance.

For, in spite of appearances, Japan has no sympathy for the United States. There is an antagonism between the two countries; the question of Mistress of the Pacific will bring them together one day.

This is the reason also why the United States has suddenly declared herself a partisan of the submarine.

NOTE.—The squadron referred to was the Japanese Cadet Training Squadron on its annual cruise.—ED.

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4. Fuel-oil and gasoline reserves.

FUEL OIL

	Tons
Reservoir fuel-oil tonnage actually built and in use end of 1926	120,000
Additional reservoirs to be completed during 1927	25,000
	145,000
Reservoirs (projected) to be built 1928 to 1938 (approximately 141,000 tons per year)	1,555,000
	1,700,000

In view of the many inaccuracies in figures in French official publications, it would be impossible to arrive at a correct figure showing the tonnage, location, and status of French oil reserves.

From a careful purview of many documents the 145,000 tons of reservoirs (actual stowage tonnage up to 1927) may be considered as located as indicated below. Any increase over these figures would be in favor of Toulon or Bizerte:

	Tons
Brest	28,000
Toulon	50,000
Bizerte	44,780
Cherbourg	11,000
Lorient	3,500
Ajaccio	4,000
Dakar	2,000
Casablanca	1,000
Rochefort	200
La Pallice	250
Calais	270
	145,000

From the above it will be seen that there remains a reservoir tonnage of 1,555,000 to be completed by 1938.

As of date November, 1926, construction of additional reservoir tonnage (fuel oil) of 115,000 tons has been actually authorized; construction of 100,000 tons has actually commenced.

The French do not publish in detail their plans for fuel-oil and gasoline stowage (that the next war will be fought with oil and gasoline is a byword with military writers), but the additional oil reservoirs for the navy will necessarily have to be built at Toulon, Bizerte, and Brest, the three principal bases.

It was contemplated making Toulon the oil depot for the French Navy, but, in view of the growing importance of the Mediterranean, it appears very probable that Bizerte will get a good portion of oil-reserve storage.

The French Navy will need to purchase during 1927 the following fuel oil:

	Tons
For use of ships in commission	171,000
Fill new oil tanks	44,000
	215,000

With a total reserve capacity of only 145,000 tons and an annual need of 171,000 tons of fuel oil, increasing annually as the new units go in commission, the French Navy is far behind in the fuel-oil situation. The total storage capacity for fuel oil (145,000 tons) is 26,000 tons short of the annual requirements of the fleet for 1927.

The ministry of Marine is awake to the oil situation as confronting the navy and is endeavoring to speed up construction of oil reservoirs to 100,000 tons per year in France, with an additional 50,000 tons per year in the colonies.

GASOLINE

	Tons
Reservoir tonnage actually built and in use end of 1926	13,420
Actually in course of construction	None.
To be constructed (1926–1938) as per proposed program (total 165,000 tons	151,580
Total	165,000

From what sources of information available, it would appear that the storage of gasoline is as follows:

RESERVOIRS

	Tons
Cherbourg	3,680
Brest	980
Lorient	60
Rochefort	130

	Tons
Toulon	3,740
Ajaccio	1,350
Bizerte	650
Oran	2,830
	13,420

In view of the fact that the navy can draw on the army for gasoline in case of need, it is not considered that the navy will expend funds for gasoline storage to the detriment of fuel-oil storage.

No information is available as to where the French propose to construct the additional 151,580 tons of gasoline reservoirs.

NOTE.—For further information on French fuel-oil and gasoline storage, see the September Bulletin.—ED.

GERMANY

A. NAVAL

1. Launch of destroyers.

Two new torpedo boat destroyers, named, respectively, *Falke* and *Condor* after two former small cruisers, were launched recently at the Wilhelmshaven dockyard. The director of the yard made a speech in which he pointed out that the two new boats completed the full number of the German destroyer flotilla. The launching ceremony was strictly military. In conformity with the regulations of the naval control commission, the boats do not exceed 800 tons each.

NOTE.—These are the last two boats of this program to be launched. The others are the *Grief*, *Seeadler*, *Albatros*, and *Moewe*. They are all of 800 tons, speed 33 knots, three 4.1-inch guns and four 19.7 torpedo tubes. None are completed yet.—ED.

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2. Krupp stabilized sight for naval guns.

It has been learned that Krupp has now improved their stabilized sight for naval guns. The older type of sight which was generally adopted by the German Navy in 1917 and further improved in 1918 consisted essentially of a device which held the horizon as a result of the action of a small gyroscope. When the gun passed through the firing angle (in elevation) as set on the device, same was automatically fired. Another device on the sight automatically corrected for the error due to the angular velocity of the muzzle in passing through this angle of elevation.

Since that time, Krupp has further improved this sight by the addition of another special feature whereby the correction is automatically made for the simultaneous pitching of the ship. This

latter factor would result in the introduction of an error in deflection if left uncorrected. According to Krupp this problem has now been fully solved. Tests are now being made on this device by the German Navy for final acceptance. No details of the device have been given out.

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3. *Sale of mines to Turkey.*

It has been learned that the type of German mine as developed at the end of the war—depth mooring device, delayed action, etc.—is now being manufactured at Bofors in Sweden.

In May, 1926, a large number of these mines were purchased by the Turkish Government at Angora for the Turkish Navy. It is reported that the order was placed for these mines only a few months ago and that the cost of same was 5,000,000 marks.

NOTE.—See December BULLETIN for description of activities of Bofors Steel Works.—ED.

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4. *Blohm and Voss shipbuilding yards, Hamburg.*

At present this yard employs 5,000 men; can employ up to 15,000. The only construction work they have at present is the construction of the passenger liner *New York* for the Hamburg-American Line, and the passenger liner *Cap Arcona* for the Hamburg-South American Line. The *New York* is a sister ship of the *Albert Ballin*, *Deutschland* and *Hamburg* already in the service of the Hamburg-American Line; of 20,000 register tons. The *Cap Arcona* is somewhat larger in tonnage than the *New York*, and was commenced about two months ago. The *New York* is expected to have her trial trip next March, 16 months after laying down of this ship. The fast work is due to the fact that she is the fourth ship of the same type to be built here. The works now manufacture everything in connection with the building of these two ships, except the material and large steel forgings such as the shafting. This part of the work has been divided among several large manufacturing concerns in the Rhineland. The foundry is capable of castings up to 15 tons, and this enables the firm to produce all the castings necessary for the ships under construction here. They now make it a policy to do all possible manufacturing work themselves in order to get as much as possible out of their huge plant. Other work here at present: repairing of six merchant ships. The Cunarder *Andania* and two other merchant ships are docked in floating dry docks. By combining two of their largest floating docks they can get a lifting capacity of 72,000 tons. All the boilers, as well as the main and auxiliary machinery of the *New York* and *Cap Arcona* will be constructed here.

The boilers of the *New York* are double-ended Scotch boilers, oil burning. The *Cap Arcona* will have water tube boilers.

This plant has manufactured Diesel engines, but at present have no such work on hand. Was informed that the Vulcan Works had practically no work whatever.

The yards, which originally occupied a small portion of the northwest corner of the island Steinwaerder in the Elbe, now cover an area of 6,240,800 square feet, with a water front of about 1.86 miles. The area covered by workshops and other buildings is about 2,582,400 square feet. The Werft Harbor, jutting into the yards from the west, has a depth of 29–45 feet and an area of 430,400 square feet.

In laying out the yards originally, the guiding idea was not only the construction of ships, but also repair work for the Hamburg shipping companies and other shipping companies whose vessels touched at that port.

The construction of merchant vessels and repair work has since been the backbone of the undertaking, even though at one time or another considerable work has been done for the navy.

Owing to the ambition of the German shipping companies and their endeavors to enter into effective competition with foreign companies, the dimensions of passenger vessels were continually increased which made it necessary to enlarge the slipways accordingly. About the same time, as a result of the fleet law of 1900 for the enlarging of the German Navy, necessary steps were taken to meet the increased building activities and Blohm & Voss did not delay in adapting themselves to the demands of the navy.

In order to be able to meet the increased demands of the merchant and naval service, it was necessary to enlarge the plant, and within a few years the latter was more than double its original size. Five new launching ways were built in the course of the years in the new Werft harbor, added to the five old launching ways near the Elbe and destined for merchant vessels up to 656 feet in length. These latter launching ways are suitable for war and merchant vessels up to 1,049 feet long and 180 feet wide. The well known battle cruisers of the German Navy as well as the world's largest passenger steamers, *Vaterland* and *Bismarck* (known now as *Majestic*) were constructed here.

A gigantic crane extends over the group of the five new launching ways and makes it possible to transport building material rapidly by means of the numerous other cranes extending all along the length of the ships.

In 1920 the old launching ways along the Elbe were entirely modernized. In place of the former five launching ways, there are now four new ones equipped with four high traveling cranes—rotary cranes running on a track.

The preparatory work is done on the material in two large shipbuilding halls. These are equipped with furnaces, cutters, rolling machines, planes, boring and milling machines, etc., of the most modern type.

There are two machine shops, the newer of which was considerably enlarged in 1916. They are equipped for constructing piston engines, steam turbines, oil engines, gear for ship propulsion as well as for all types of auxiliary machinery for ships.

There is a test stand fitted with extensive equipment for steam generation and condensation which permits the testing on land of even larger engine plants.

After the war the plant took up the repairing and overhauling of locomotives as a substitute for the boiler, casting, and machinery construction work for naval vessels, and this has since remained one of the important activities of the plant. There are two boiler shops for the construction of cylinders and water-tube boilers of all dimensions. The plant has its own foundry, which is equipped, among other things, with a modern electrosteel furnace and all the bronze, steel, and cast iron necessary for machinery construction is made here. There are locksmiths and carpenter shops, ship foundries, saw mills, drying sheds, model carpenter shops, coppersmiths' workshops, stock of models, electric workshops, painting and rigging shops, stock of models, electric workshops, painting and rigging shops, plumbing shops, etc. Warehouses, sheds, and timber yards all fitted with cranes are used for storing the raw material as well as finished and half finished material to be used in the manufacture of machinery and in shipbuilding.

For transportation there are wagons, trucks, locomotives, automobiles, and cranes. There is a gigantic tilting crane of 250 tons (the largest crane of its kind in the world) located on the broad quay on the south shore of the plant, where the ships under construction and those under repair are tied up. The quay is 3,608 feet long. There are also five cranes of 10 to 15 tons. The plant also has a crane of 150 tons, a mast crane of 100 tons, and a crane of 50 tons besides a large number of cranes in the net of traveling cranes, operated by electricity or steam.

The extensive net of electric, pneumatic and hydraulic lines are fed from two power plants equipped with steam and oil dynamos, air compressors and hydraulic plants, as well as from a floating dock plant. The electric machines can furnish 9,500 kilowatts of electric energy. The compressed-air plant has an output of 70,000 cubic meters (2,464,000 cubic feet) per hour. The hydrogen gas, oxygen gas, water and acetyline gas are generated in the plant's own gas works. The plant has all necessary equipment for autoge-

nous and electric welding, as well as a well-trained personnel for this kind of work.

There is a laboratory with all necessary equipment for chemical, mechanical, and optical testing of material, for controlling the quality of all important constructive material. The apparatus and machinery in this laboratory furnish the most exact measurements.

The plant has devoted the greatest attention to repair work and all the departments engaged in this work are equipped with the most complete and modern installations. The most important item for this purpose is the docks with a lifting capacity of 120,000 tons, representing the most efficient floating-dock plant in the world. There are six docks of from 3,000 to 46,000 tons, which, when properly combined, have even a greater lifting capacity. For instance, in this way ships of the *Imperator* class can be docked which is not possible elsewhere with floating docks. The larger docks have their own power plants and floating supply rooms for the necessary equipment.

The repair personnel is the product of years of training. For ships requiring small repairs which must be made during the unloading and loading period, the plant is so equipped as to be able to make the repairs wherever the ship may be anchored in the harbor. During the periods of greater activity, the plant has employed about 14,000 employees and workmen.

Before the war the firm was engaged in the construction of high-class passenger and freight steamers, fast steamers, large sailing ships, and naval vessels, as well as machinery and boiler plants for foreign and domestic orders.

Among the merchant vessels constructed by this plant may be mentioned:

Hamburg-America Line: *Pretoria*, *Graf Waldersee*, *Moltke*, *Bluecher*, *Cleveland*, *Vaterland*, *Bismarck*. Hamburg-South America Line : Six "Cap" steamships, among them *Cap Finisterre*, *Cap Polonio*. German-East Africa Line: several mail packets. Also steamers for the Woermann Line, the North German Lloyd, the German-Australian Steamship Co., and the Kosmos Line as well as several large sailing vessels for the firm of F. Laeisz.

The plant led in the construction of fast turbine cruisers. Nearly all the modern battle cruisers of the German Navy which did duty during the war were constructed by Blohm & Voss. These were *Von Der Tann*, *Goeben*, *Moltke*, *Seydlitz*, *Derfflinger*.

The technical personnel, thoroughly conversant with everything connected with the construction of merchant and war vessels, also act in the capacity of consulting experts for domestic and foreign firms. This not only includes suggestions for dockyards and dockyard extension work but also in connection with the construction of

all kinds of ships. This branch of the plant's work is also actively engaged in the designing and making of construction drawings for antirolling tanks according to the Frahm patents, which are held by Blohm & Voss.

During the war the plant was engaged solely in national work. Numerous merchantmen were converted for various war purposes and a tremendous amount of repair work done, and every energy devoted to the construction of new warships. The construction of battle cruisers was continued as well as lighter vessels such as small cruisers and destroyers. During the last years of the war, the major part of this work was devoted to submarine construction. A total of 97 boats were constructed, the largest number delivered to the navy during the war by any German shipbuilding firm.

After the close of the war, the plant went back to the construction of merchant vessels. It constructed a number of freight and passenger ships as well as large freight steamers for a number of the most important German shipping companies, all these vessels being equipped with the most modern machinery, namely, turbines with transmission gear, or Diesel engines. The main part of the shipbuilding activities again falls to high-class merchant-men. Repair work consists of all sorts of repairs as well as conversions, both on foreign and domestic ships.

B. AERONAUTICAL

1. Effect of recent Paris air agreement on German aeronautics

[Source: German press]

The "Reichsgesetzblatt" of July 13 contained notice of a law cancelling all existing limitations affecting German aeronautical construction and empowering the Government to take such measures in the province of aeronautics necessary to fulfill the new obligations assumed.

The nature of these measures is traced by the results of the long, tiresome negotiations which were brought to a conclusion on May 21 in Paris after an extensive exchange of notes between the German Ambassador in Paris and the ambassadors' conference. What does this agreement comprise, and what responsibilities has Germany assumed?

First, Germany is forbidden to construct, to maintain, import, or put into service aircraft which are in any way armored or protected, or which are equipped with installations for the mounting of weapons of any kind, such as machine guns, torpedoes, bombs, or which are equipped with sighting and bomb-launching installations for such weapons. While this regulation is to be taken as an interpre-

tation of article 196 of the peace treaty, it contains a further responsibility. For Germany will have to make the construction and importation of such planes which bear the technical impress of modern pursuit craft as regards weight, the relation of the weight to the motor performance, the seating arrangement, the constructive safety, the climbing speed, the flight speed, and the ceiling, contingent on a special permission, and this permission will only be accorded for participation in public international competitions or officially supervised records, or preparations therefore, which, however, may not extend to practice in flight schools. The number of these planes is limited to the number of the civilian planes of the same kind which are used in another European country for the above-described purpose; the number of pilots for such machines will also be limited. The construction of distance-controlled planes is forbidden in Germany. The German aeronautical industry has regained its liberty, so to speak, by this agreement, though not completely in every respect.

But the new regulations deal a hard blow to German sport aeronautics. For the German Government is to see that no public funds are used for the furtherance of sport flight training of air pilots beyond the actual needs of the air traffic and the factories. Money prizes and organization funds for competitions are not to bear the character of subsidy and are only to be accorded to recognized competitions. While all other countries may render all possible aid in connection with the training of sport flyers, Germany must forego all public assistance of this nature. Military flight training is naturally forbidden; in fact, members of the army and navy may not indulge unlimitedly in sport flying. Only 36 may be trained for sport flying, at their own expense without assistance or special leave of absence, at the rate of six per year, beginning January 1, 1926. Of those members of the armed forces who possess pilot licenses dating previous to April 1 of this year, only 36 may fly, so that the total number who may indulge in sport flying is limited to 72. There are similar restrictions for the police, only 50 of the officials detailed to the different air ports being allowed a pilot's license, in order to be able to exercise control of the commercial air service.

In the occupied zones which have heretofore been forbidden to German flyers, there are no restrictions for commercial flying, except those imposed by the Rhineland Commission for the safety of the troops of occupation. This does not put the occupied and nonoccupied zones exactly on the same par, for aircraft must bear a collective or individual permit from the Rhineland Commission. A refusal to grant such permission must be explained. After evacuation, the airports in the occupied zones are to be turned over to the commercial air service. The number of the airports and landing fields in the so-called neutral zone is limited since only four airports and 12

landing fields may be opened in this area. Special regulations are laid down regarding their size and equipment. One concession to Germany is that the Allied Governments forego their property rights to the plants at Friedrichshafen and the installations allowed Germany for commercial traffic by the terms of the peace treaty.

What differentiates the new regulations from the former ones is that the latter were in the nature of an edict, while the new ones bear the character of a responsibility assumed voluntarily. The control of the execution of these responsibilities is vested in the League of Nations and not, as formerly, through the aeronautical control commissions, which are recalled. In order to keep the former informed regarding the fulfillment of said obligations, the German Government will cause the following lists to be regularly submitted:

(*a*) Factories manufacturing aeronautical equipment.

(*b*) Aircraft or aircraft motors under construction or completed, showing the planes and motors destined for exportation.

(*c*) Pilots and pupils.

(*d*) Undertakings carried on by commercial air lines.

(*e*) Associations, companies, or individuals engaged in flying or using aircraft.

(*f*) Other owners of aircraft.

What has been attained by these new arrangements for our commercial air service? When our negotiators left for Paris over six months ago, there was only one route: Back to Versailles! Germany has not yet attained this goal even though having come a good step along the way. Some of the new regulations may be viewed as commentaries on the text of the treaty but others, on the other hand, undoubtedly go beyond the wording of the treaty. The liberty possessed by other nations in aeronautical matters is still denied Germany and the attainment of such liberty must be the goal of our future efforts.

NOTE.—Other terms of the German-Franco air agreement, signed in Paris on May 22, 1926, were given in the October BULLETIN.—ED.

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2. The Focke Wulf Airplane Co.

The plant is located on one side of the Bremen aviation field. The present structure was completed early this year. It is small but compactly built, consisting of a one-story building of concrete construction, composed of assembly shop, wood-working shop, shop for mounting of fabric material, metal shop for shaping metal used for nose and gasoline tanks, wing construction shop.

The planes are constructed of wood and fabric except the nose of the fuselage and the supports for the motors and gasoline tanks. One two-engine plane, type GL–18 has just been completed and delivered; another one is almost completed; and one more is under

construction. In addition there were in the assembly shop four single motor four-passenger planes, type A–16 and one school plane.

At present there are between 60 to 70 persons employed in the shops. I was informed that the two-motor plane can be built in six weeks. These planes are used only for short stretches of air traffic or locally to connect with the main air routes. A number of the single-motor planes are used at Bremen for summer traffic between Bremen and the various island summer resorts in that vicinity.

I was told that they had an order for an eight-passenger plane. All construction work is exceptionally well done and well finished, everything by hand. The plane is in consequence somewhat expensive for a wood and fabric plane. The firm consists of a Mr. Focke, an engineer, and Mr. Wulf, a former flyer.

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3. Dornier "Superwal."

The *Superwal* is basically similar to the other Dornier flying boats in that the hull is developed as a stairlike boat with floats on either side to insure the lateral stability. These latter are necessary as the center of gravity is located higher than in an ordinary boat owing to the motive power being above the wings and the maximum span of the wings during a heavy sea makes the movements of the plane heavy. The high position of the wings and the motor plant protects them from heavy seas. By supporting each wing by a pair of struts located about the middle of the wing and attached to the wing girders, it has been possible to construct the wings with a thick and aerodynamically favorable cross section of the same size from end to end, resulting in greater air resistance and weight than the half cantilever wing.

The arrangement of the motors above the center of the wing makes it possible to construct two or even three such twin motored hulls on the center piece of the wings, and does not restrict the arrangement to merely two motors arranged in tandem. Any kind of motor can be installed but the horsepower must amount to 1,400 to 2,000. Naturally the weight empty of the plane increases with the performance on account of the greater weight of the motors but the load can be increased even more so as the increasing reserve performance makes it possible for the plane to rise with increased weight even from very rough water. This increasing of the number of motor units naturally has the advantage that in the event of the failure of a motor, an ever smaller percentage of the total performance is lost so that even with increasing loads, the plane's power of suspension is unaffected. If there are only two motors and one of these breaks down, the boat is still buoyant with at least two-thirds of the ordinary load.

The arrangement of the two propellers in tandem has been proven by a long series of tests as equal in every way to the twin arrangement, for even though the pusher propeller must operate in the wash of the tractor propeller, this enables it to counteract the torsion of the propeller jet caused by the front propeller (similar to the action of the counterpropeller in ships) so that the total efficiency is equal to that of freely operating propellers.

The center of gravity of the tank room is also located in the proximity of the center of gravity of the entire plane, so that the decreasing weight of the fuel during the flight will not affect the equilibrium of the plane. The tank room must therefore always be located between the two main frames of the hull, to which the buoyancy of the wings is transmitted by the pairs of girders and struts. There are usually four tanks of 600 liters capacity each on the floor of the tank room and another four of 285 liters capacity each suspended from the ceiling. This total capacity of 3,540 liters corresponds to a fuel weight of 2,760 kilograms, if, as customary, 40 per cent benzol is added to the benzine. This fuel is sufficient for about 1,242 to 1,367 miles of flight.

This separation of the fuel from the motor greatly reduces the danger from fire. The fuel is pumped into a small gravity tank by a ratchet-wheel pump operated by the wind, and it is then fed naturally to the carburetors. In order to enable small repairs to be made during long flights, the tank room is connected with the motor hull above by a shoot. A cooler in front runs off into a broad, open slit in the back for carrying off the air warmed in the cooler. This slit can be closed, which reduces the cooling effect of the outer air and enables the passenger cabin to be heated by the air coming from the cooler.

The pilot room has two seats and double steering controls as well as all the instruments necessary for navigation and fuel tank control. These instruments are all arranged in front of the tank room so that they can be watched by the pilot. There is a cargo and mail room back of the tank room, to equalize the weight. The passengers are placed in two passenger cabins, accommodating 13 in front and 8 in the rear. These cabins can be arranged directly or indirectly in front and behind the tank room, as desired by the purchaser. The hull is about 3.5 meters broad (11.4 feet) at its broadest part so that the front passnger cabin is very roomy and comfortable as compared with present-day commercial planes. The hull is 77 feet long, the wings have a span of 93 feet, and the speed can amount to between 118 and 130 miles an hour, dependent on the motors used.

NOTE.—The Dornier plant is at Friedrichshafen. The *Superwal* is normally engined by two 650-horsepower Rolls-Royce Condor engines.—ED.

4. German-Spanish air plans.

It is reported that Doctor Eckener, of the Zeppelin Co., intends to visit Madrid in order to take part in the deliberations concerning the organization of trans-Atlantic air traffic, as representative of the Zeppelin Co. A German delegation will visit Madrid at the same time with the object of completing the necessary preparations for the establishment of the new Berlin-Sevilla air line.

The construction of the first transoceanic passenger airship is being pursued at Friedrichshafen with the utmost energy. The construction of the frame will be begun in about five weeks, but the airship can not be expected to be ready for its first trial flight before a year's time. The adaptation of the gigantic air vessel for passenger and postal traffic has necessitated certain constructive modifications which will apparently prov satisfactory. Unlike the *Los Angeles*, the pilot's car is separated from the passenger cabins. The pear-shaped control cabin with sections for steering controls, wireless, etc., occupies the nose of the airship and the large roomy cabins are situated nearer to the center. The seats can be converted into beds for the night like in American cars. Each cabin is adapted for two passengers. A large electric kitchen provides for all necessary cooking requirements.

The wireless station will be the object of special consideration. Its radius will be such as to insure uninterrupted telegraphic communication with the Continent throughout the voyage. The ship will measure 230 meters in length (754 feet), 31 meters in width (101.6 feet), and 35 meters in height (114.8 feet). Three motor cars will be mounted along each side, a seventh car being suspended under the airship near the stern. The seven motors, whose total output will equal 2,940 horsepower, are at present under construction at the Maybach Motor Works. Rubber bags containing water will be suspended under the airship—fulfilling the double purpose of balancing the distribution of weight and—when filled with air—of enabling the ship to land on the surface of the water. The hangars will presumably be erected on the coast.

With the establishment of the Spanish-South American line three-quarters of the earth's circumference will be covered by an uninterrupted line of air traffic communication. The inclusion of Spain into the network of the European air system has already been planned for 1927; contrary to certain erroneous reports, the connection will be effected, not over Paris, but starting from Stuttgart over Basel-Geneva-Marseilles, and further over Barcelona to Madrid. The preparations for the establishment of this German-Spanish line are so far complete that the Junkers giant airplanes and Dornier Wal airships intended for the purpose will be sent to Spain the moment the air treaty is signed at Madrid. The establishment

of a Madrid-Sevilla line communicating with the trans-Atlantic airship line will not offer any difficulties. A Far-East air communication will presumably be established in the near future, thus insuring an uninterrupted line of air traffic from the eastern confines of Asia to the extreme southwestern point of the European continent, where it will connect with the trans-Atlantic South American line.

The possibility of establishing a similar air communication on the opposite side of the South American continent already exists owing to the numerous air lines recently established in Argentina, Bolivia, and especially Colombia. They are operated with Dornier Wal and Junkers airplanes by the Sociedad Colombo Allemana de Transportes Aeres (Scadta), which entertains active communications with the German Luft Hansa. The air traffic circle around the globe will soon only require the establishment of a South American-Asiatic line over the Pacific to be complete.

NOTE.—This new dirigible will be known as *L. Z. 127*. The most interesting feature of the ship is its use of gaseous instead of liquid fuel. Details of this gas were given in the BULLETIN of August last, while further details of the ship were in the December BULLETIN.—ED.

C. MISCELLANEOUS

1. Suggestions to junior officers.

[Source: Militaer Wochenblatt]

It is impossible to conceive of any homogeneous social organization without authority. Every authority rests fundamentally on two principles: First, inner superiority in ability, knowledge, experience, and character supported outwardly by a special organization; the family, the State, courts, police, and army.

In the army, the most important aid to authority is discipline. Thanks to the disciplinary organization of the army, the authority of every officer is assured, quite independent of the value of his own personality. Discipline is the most important basis of the authority of the officer. Discipline is the surest method of insuring the submission of the individual will to that of the majority, and enables the maximum of efficiency in an army which can never be attained by an organization which is not based on the principle of authority and obedience.

However, the authority of the officer is not maintained by discipline alone in its principal forms of drill and punishment; that is, with the medium of force alone; it rests much more on a series of other factors, principally on the special personal characteristics of the officer.

Only when he is far superior to his subordinates in ability and knowledge will the officer possess an absolutely unfailing authority. He must have such a grasp of every situation as will assure him the unreserved confidence of his subordinates. His purely physical attainments must be superior to the average performance of his subordinates of the same age.

It is equally important that the officer as a personality be a brilliant example to all his subordinates; the duties of office show clearly the necessary requirements in this respect. He must exercise the disciplinary powers vested in him

with unswerving justice. He must attract his subordinates to him; that is, inspire them with the desire to emulate his own exemplary idea of duty and patriotism. He must train them to be moral individuals whose civic sense views as absolutely essential subordination to the authority of the officers and the State.

A further basis of the authority of the officer is his untiring care for his subordinates, which is all the more effective the more unostentatiously and quietly it is exercised. He must know where the shoe pinches in each case. No trouble, no honest requiting encouragement and guidance should remain withheld from him. The officer best preserves his authority when he shares the living conditions of his subordinates in time of war; he must keep his distance, however; any familiarity between superiors and subordinates is the ruin of authority.

Authority is not furthered by continuous orders and the regulation of every little detail of service. To issue few orders, but supervise the execution of these few orders and otherwise allow the initiative of each subordinate as much play as possible furthers authority.

The question of the young officer's gaining authority over older noncommissioned officers is especially difficult. In consideration of this difficulty the period between the entrance into service and the appointment as officer has been considerably lengthened since pre-war days, and quite correctly so. But the older noncommissioned officer is superior to the 22-year-old lieutenant in life experience and war experience. However, the young officer is superior in outward demeanor, deportment, general education, tactical training, and a knowledge of the country's history. It is advisable to draw a sharp line between the activities of the young officers and the older noncommissioned officers, if authority is not to suffer. The young officer should only interfere in details in connection with drill training and the use of weapons if the older noncommissioned officers are in error. But he should only do so by calling them into conference in the evening and discussing the program with them and giving exact instructions or suggestions regarding the method of training. He should supervise the execution of these instructions. If a young officer overlooks any infringement of his distinct orders, then his authority is shattered. Such intervention in the province of the noncommissioned officers must proceed from a thorough knowledge of the regulations. The young officer should never appear without thorough preparation for service. Any deficiency which may be apparent only injures his authority.

The young officer furthers his authority when he assigns to his subordinate officers problems for independent solution; without independence the very best of the older noncommissioned officers become discontented and incline toward criticism of the younger officer when they are unoccupied.

A young officer should never instruct or reprimand a noncommissioned officer in the presence of subordinates; he injures the self-respect of the individual noncommissioned officer and the entire noncommissioned officer corps, which then only unwillingly recognizes his authority. Unnecessary sharpness should always be avoided in instructing older noncommissioned officers. Sarcastic or ironic comments are insulting and show a lack of the tact which should characterize the authority of the superior.

It is also equally wrong if the officer, in order to get closer to the older noncommissioned officers, intrudes or insinuates himself when opportunity is given on occasions of social intercourse; in other respects very desirable. However the young officer should always keep his distance; he should never show himself in a condition unworthy of his calling.

The young officer must make public acknowledgment of real performances of the older noncommissioned officers, and do so with great tact, stressing them before the subordinates. The greatest error which can be made by a young officer—a sin against the very spirit of authority—is for him to ask advice from an older noncommissioned officer at the front or join the noncommissioned officer in criticism of orders from a higher source, as opportunity offers.

The young officer should put forth his whole power toward cementing his authority where he is the superior; a model in sport and firing accomplishments, he must seize every opportunity of showing his assurance and superiority in tactical knowledge and in battle training. He must fascinate and carry along with him his subordinates by enthusiastic, patriotic instruction. He will therefore be willingly acknowledged as an authority in these performances which older noncommissioned officers can not attain.

The young officer should avoid discussing any political, economic, or social problems with the older noncommissioned officers, and also avoid touching on them in his instruction; these questions can only be handled by an experienced older officer with the cleverness and tact which avoids any jeopardizing of the authority.

The young officer in his demeanor and the nature of his training and education should counterbalance in a clever way the often more restricted viewpoint of the noncommissioned officer's training and educational system.

If the young officer avoids the errors pointed out here and emphasizes his superiority at the proper place, he will soon possess an unshakeable authority.

Therefore the best foundation for authority in all officers is not individual performances and knowledge, but personality and discipline. The words which Walther Flex has put into the mouth of his lieutenant in his war romance holds true for all officers: "To do a lieutenant's duty means to show his men how to die. A leader does not need to be a strategist. Anyone who is a real man needs only learn his trade," to which his experienced comrade replies: "To do a lieutenant's duty means to show his men how to live. The dying is only a part of it, but the best part is the showing how to live, and this is also much more difficult."

GREAT BRITAIN

A. NAVAL

1. H. M. S. "Nelson."

The following information has been received from sources believed reliable:

Armament, 16-inch battery: The turrets are reported to be fitted for variable loading with the guns in any elevation from 0 degrees to 8 degrees. The maximum elevation is not less than 35 degrees and may be as much as 40 degrees.

Armament, 6-inch battery: The maximum elevation is reported as 70 degrees. Information from other sources not confirmed has been that this figure may be 80 degrees. In this connection attention is invited to the angles of elevation shown in photographs in the December BULLETIN which tends to confirm the above figures.

Antiaircraft battery: Recent press notices subsequent to the issue of Jane's "Fighting Ships," 1926, state that the 4-inch antiaircraft battery will be installed aft on the quarter deck. For reasons previously given, it is believed reasonable that the caliber of these guns will be 4.7 inches and that a part of the battery at least will be installed aft, as mentioned in Jane's "Fighting Ships." It has not been possible to confirm Jane's version that there are to be 10 of the A. A. guns.

Fire control: A 41-foot Barr & Stroud range-finder will be installed forward. The towerlike structure aft of the mainmast is an after fire control tower.

Catapults: It is said that the Admiralty is negotiating with the contractors for H. M. S. *Nelson* with a view to the installation of a thwartship powder catapult to be installed on the *Nelson* forward of the stack and abaft the foremast structure.

NOTE.—Attention is invited to the photographs of the *Nelson* as given in the December BULLETIN. Various other notes are given in the August to November BULLETINS inclusive.—ED

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2. *H. M. S "Adventure."*

The cruiser-minelayer *Adventure*, which was laid down on November 20, 1922, in the ordinary course should have been passed into the fleet a year ago. Owing, however, to financial reasons she is only just nearing completion at Devonport. Early next month she is to be commissioned for trials, and there is every reason to hope that, unless something entirely unforeseen happens, she will take her place in the fleet by the end of the current financial year. In appearance she does not differ to any material extent from a modern cruiser, but will combine the functions of cruiser and minelayer. In her there is a storage capacity for a large number of mines, which will be dropped from ports cut in the square stern. She has a standard displacement of 6,740 tons, with an estimated horsepower of 40,000. Her main armament will consist of four 4.7-inch and four 3-pounder guns, and her speed will be 27.75 knots. She is the first large ship of war of any nationality to have internal-combustion engines for cruising. It is reported that she will carry 1,000 mines of an improved type.

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3. *British submarines under construction.*

The following announcement appears in a recent issue of the "Shipbuilding and Shipping Record," in regard to the award of submarines of the "O" type of the 1926–27 program:

Vickers Limited are to build three submarines and Wm. Beardmore & Co. Ltd., two submarines for the British Admiralty. A sixth vessel of this type is to be built in one of the dockyards.

The Admiralty have confirmed the above announcement and furnished the additional information that the sixth vessel to be built at one of the dockyards is to be built at Chatham Dockyard. It is noted from the navy estimates for 1926–27 that provision is made for one submarine to be built at the dockyard, Chatham, the amount provided in the estimates for this purpose being £21,733. No details of the characteristics of the submarines are given in the estimates. This office understands, however, that the design of the six submarines will be substantially the same as that of the *Oberon*.

NOTE.—The *Oberon* is of 1,345/1,750 tons and mounts six bow torpedo tubes.—ED.

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4. Armor-plate plants.

The First Lord of the Admiralty was asked in Parliament as to the nature of the inducements he is offering to the manufacturers of armor plate to maintain their existing plants and technical staffs in view of the fact that at present, owing to the operations of the Washington convention, four out of the five existing plants are not required.

The First Lord of the Admiralty replied that the inducement offered to the manufacturers of armor plate to maintain their existing plants and technical staffs is that each manufacturer has been given a share of the orders for armor plate at prices which take into account the higher cost necessarily involved in producing small quantities.

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5. Singapore dry dock.

It was the idea at one time to proceed first with the provision of a graving dock at Singapore, but the present Government came to the conclusion some time ago that that would take too long to construct, and since then the policy has been to equip the base with a floating dock capable of accommodating the largest warship possessed by this country. The possibility was considered of utilizing one of the two German floating docks which came into the hands of the Admiralty after the war, but eventually it was decided that it would be too dangerous and uncertain to attempt to tow a dock all the way to Singapore. It was found to be a troublesome business to take one of these docks even to Malta.

This being the case, the Admiralty came to the conclusion that a new dock should be built in Great Britain and conveyed in sections to Singapore, where it would be assembled. It was estimated at one time that nearly three years would be required for the completion of this work, but there is reason to believe that it is now thought that a shorter period will suffice. Up to now only preliminary work

has been undertaken at Singapore, and the expenditure has probably not exceeded £250,000. The total cost of the scheme, of which the floating dock is only a part, is expected to be in the neighborhood of £10,000,000.

Official confirmation was received to-day by Messrs. Swan Hunter, and Wigham Richardsons, Limited, of Wallsend-on-Tyne, that they have been awarded the Admiralty contract for the construction of the floating dock at Singapore Naval Base, to lift 50,000 tons, of the dimensions 850 feet long and 170 feet wide.

The firm have built floating docks for the Admiralty and others the world over, and are now building a large caisson for Devonport.

The contract cost of this new dock is £1,200,000.

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6. Imperial defense college.

The College of Imperial Defense recently established at Buckingham Gate, London, will enter upon its first course in January next. Vice Admiral Sir Herbert Richmond, who was appointed as commandant from October 1, has been busily engaged in the preliminary work of organization and arrangement.

After the war the idea of a Ministry of Defense was conceived as a means to correcting in future many of the vexing difficulties of administration and cooperation experienced during the war. The creation of such a ministry was studied, debated, and earnestly considered. When responsible Government opinion turned away from the superimposition of a new organization the idea of a College of Imperial Defense grew up.

The primary aim of the college is the unification of the defensive resources of the Empire in the event of war, which may be summed up in the word coordination—coordination of the resources of the several Dominions and cooperation of the forces within the Empire. The first problem is an adequate knowledge of all the resources of the Empire and the employment of them to the fullest advantage. The college will not only endeavor to train the personnel of one fighting service to look at problems from the points of view of the other fighting services but will also try to give the fighting services a clearer appreciation of the influences of the civil element and civil policy in relation to their own administrative departments. In order that it shall be as thoroughly representative as possible, successive commandants are to be drawn from the different services in turn and an instructor for each of the services will be included in the permanent staff. There will be an officer appointed for liaison with the civil element.

The presence in London of the Dominion Premiers at the time of the establishment of the new college is regarded with a great deal of

satisfaction as affording an opportunity for discussing the extent to which the Dominions will participate in the scheme. It is understood that the Premiers have been favorably impressed with the preliminary outline and that quotas have been provisionally arranged for the Dominions.

The first course will consist of about 30 students drawn from the navy, army, air force, Indian Army, and Dominion forces. The instructional staff is given below:

Commandant.—Vice Admiral Sir Herbert W. Richmond, K. C. B.

Naval instructor.—Capt. G. C. Dickens, C. M. G.

Military instructor.—Col. J. G. Dill, C. M. G., D. S. O.

Aerial instructor.—Group Capt. P. B. Joubert de la Ferté, C. M. G., D. S. O.

Secretary.—Maj. L. A. Clemens, O. B. E., M. C.

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7. Type complements of several ships of the Royal Navy.

		Royal navy		Royal marines		Total officers and men
		Officers	Men	Officers	Men	
Royal Sovereign (B. B. 29,350 ton)	Peace	57	768	3	130	958
	War	61	892	3	152	1,108
Warspite (B. B. 27,500 tons)	Peace	57	769	3	130	959
	War	61	917	3	153	1,134
Iron Duke (B. B. 25,000 tons)	Peace	56	797	3	122	978
	War	60	941	3	141	1,145
King George V (B. B. 23,000 tons)	Peace	63	777	3	107	950
	War	64	878	4	186	1,132
Emerald (C. L. 7,100 tons)	Peace	36	476	1	56	569
	War	37	478	1	56	572
Argus (O. C. V. 14,450 tons)	Peace	21	321	1	25	[1] 368
	War	22	322	1	25	[1] 370
Wild Swan (D. D. 1,325 tons)	Peace	6	120	------	------	126
	War	7	129	------	------	136
L. 52 (S. S. 960 tons)	Peace	5	39	------	------	44
	War	5	39	------	------	44

[1] Excludes fleet air arm complement.

B. AERONAUTICAL

1. Development of Beardmore's aero engine.

Messrs. William Beardmore & Co. (Ltd.), Parkhead Works, Glasgow, have built the first of their new heavy-duty aircraft engines, the result of years of experiment in designing and constructing types of a nature largely similar. On the blocks, this six-cylinder engine, called the Cyclone Mark 11, developed 950 horsepower at its normal speed of 1,350 revolutions per minute, and a maximum of 980 basic horsepower at 1,500 revolutions per minute, with a fuel consumption of 0.48 pound per horsepower-hour. While the company will not divulge the name of the buyer upon whose order the engine was built, it is understood to be a continental government, either France or Italy.

Although embodying several distinctive features, the motor has much in common with earlier and smaller types of Beardmore products, and also with the 400-horsepower semi-Diesel heavy-oil engine the company specializes in for light train propulsion. In the block test an effort was made to imitate actual service conditions, and the vibration was far less than anticipated. The builders claim a tumbler level full of water was placed on top without a drop being spilled.

The cylinder block is a monobloc casting of an aluminum alloy, extending from well below the center line of the crankshaft to the cylinder head level, and contains the cam-shaft housing, oil-strainer housings, lugs for fastening down bolts, and the upper half of the main bearings, the latter surfaced with a thin grooved-in layer of bearing metal. The cylinders proper are made of forged steel. They rest in seats in the block, a collar at the top on which the cylinder head rests holding them in place, and both top and bottom made water-tight by means of gaskets. Liberal water circulation space is left between the cylinder walls and the casting.

It is claimed that lighter weight, lower operating temperature through better radiation and ease and cheapness of replacements resulting from using a thin steel cylinder more than offset increased wear of walls and pistons occasioned by having steel in contact with alloy pistons. The walls are three-eighths inch thick, with an inside diameter of 8⅝ inches. The stroke is 12 inches. Steel cylinders have given satisfactory service on all other models, the builders state.

The cylinder heads, cast separately, are also of an aluminum alloy 10 per cent lighter than pure aluminum and estimated to be 50 per cent stronger. Valve seatings of steel were cast as an integral part of the head. Since the heads contain practically all the combustion chamber, they were molded in a slightly V shape to give added capacity without unduly increasing the weight necessary to withstand the great strains. This makes the valves sit at an angle of some 12 to 15° from the upright, and the rocker arms are consequently placed at a similar angle. Dual intake and exhaust outlets are provided, each 3¼ inches in diameter. Each valve is held seated by two heavy coil springs, one inside the other. The single cam shaft is mounted near the top of the cylinder block, giving a very short push rod (the tappets are fitted with rollers), and special provision is made so that the exhaust valves, located on the off side from the shaft and therefore having longer rocker arms, will be open sufficiently. At the rear end of the motor a separate housing covers all cam shaft, magneto, oil and gasoline pump gearing. Between the master gear on the end of the crank shaft and the cam shaft there are three intermediates, and such care has been given to bearings and fitting of teeth that the slightest movement at either end is immedi-

ately transferred to the other, thus eliminating all "backlash" or play. The train includes an attachment for machine-gun synchronization, if used for military purposes.

The pistons are approximately 7 inches in length, equipped with three rings near the top and an oil scraper immediately below. The company's engineers state an alloy has been employed that permits of such a close fit high compressions are obtained with the motor in a cold state, after allowing for expansion. Wrist pins, 2 inches in diameter, are full floating in both connecting rods and pistons, caps of duralumin being fitted at either end to prevent scored walls. The connecting rods, of high-grade steel drop forged into an H section, appear very light for the duty required, and so short that strain upon the pistons must be great. Bearings for the wrist pins are about 2½ inches wide. Connecting rods have been machined and polished on all surfaces to prevent flaws from starting at any tool mark.

A one-piece forging was used for the crank shaft, hollow bored, and likewise machined and polished on all surfaces. It is some 4 or 4½ inches in diameter at bearings, with massive throws. The crank shaft is only 6½ feet long, which necessitated very sharp angles for the throws. All main bearings, seven in number, are 4 inches wide, the lower half being substantial aluminium castings lined with white metal and bolted to the cylinder block. The crank shaft, connecting rods, and wrist pins are filled with oil by a force pump. No attempt has been made at counterbalancing the shaft, its lengthwise rigidity and the lightness of reciprocating parts being considered sufficient to eliminate vibration. A thrust bearing of the conventional type is placed at the front end.

Water circulation is maintained by a centrifugal pump operated from the cam shaft. Cylinder heads and jackets are of ample capacity, with the water circulating downward. This the builders believe will insure longer life and less danger of warped valves. As yet they are uncertain of the size of radiator required or the amount of water needed to keep the operating temperature at a proper level, all tests on blocks having been made with a constant fresh stream.

Dual magneto ignition is provided with very small, compact spark plugs placed between the intake and outlet valves. Great attention to heavy insulation and covers insures against weather conditions affecting the motor's performance. Two carburetors of the "Weir" type each supply a group of three cylinders, pressure feed maintaining a flow of fuel exceeding demand at all times. They have altitude adjustments operated from the cockpit. On several engines built especially to run in an inverted position Beardmore's claim these carburetors proved the best that could be found.

Direct oil connection to each main bearing, from which the lubricant enters the crank shaft, and to the cam shaft and gear chain are force fed at between 40 and 50 pounds pressure. Double systems enable one pump and strainer to be cleaned while the motor is in operation, if necessary, a shift of the cock diverting the stream from one to the other. Oil is carried in an external reservoir, another pump keeping the crank case dry. There is never an oil spray in the pump.

The starting equipment is of rather an unusual character. The builders designed a small two-cycle air-cooled motor (about 1 horsepower) that may be placed at any convenient spot on the airplane and connected by means of a five-eighths-inch pipe to a distributer on the cam shaft. With this auxiliary engine going, a mixture of gasoline and air considered proper for combustion purposes is forced into the cylinders on the downward power stroke, the distributer being properly timed. While no great pressure is attained, it is sufficient to move the pistons at a slow speed, and the auxiliary engine also furnishes hot sparks that occur during the duration of the power stroke. One revolution is usually sufficient to start the motor. Valves set in the cylinder heads admit the mixture from the auxiliary distributer, these remaining closed during ordinary operation.

Tests thus far conducted have not determined the most efficient type of propeller. Four-bladed props from 12 to 16 feet in diameter, with pitches varying from 9 to 14 feet, have all been used, but a final decision will be left to the aircraft builders.

Messrs. William Beardmore & Co. (Ltd.), have given the following information:

The aim of the design has been to develop high power from as few cylinders as possible, to reduce the number of parts in order to provide easy maintenance and reliability, while accessibility is a marked feature of the construction.

It will be noted that the engine is narrow and very clean in outline, and this permits it being installed into a very narrow fuselage, thus reducing the head resistance inevitable with the use of radial or V types.

Its simplicity and freedom from the multiplicity of attachments usually associated with aero engines is noticeable.

The company has also given the following details:

Compression ratio	5¼ to 1.
Over-all length	80.3 inches.
Over-all width	35 inches.
Weight complete, less oil and water	2,150 pounds.
Ignition, number of magnetos	2.
Fuel consumption per boiler horsepower hour	0.48 pound.
Oil consumption per boiler horsepower hour	0.010 pound.

NOTE.—Engine weight does not include airscrew hub.

We would wish to draw especial attention to the fuel and oil consumption of these engines, which are abnormally economical in this respect, and when the weights of fuel and oil over a long period are taken into consideration, considerable advantage accrues to the cyclone engine on this score.

GREECE

A. NAVAL

1. Petroleum supply for the Greek Navy.

A board of officers of the Greek Navy was sent to Zante to examine the sources of petroleum on that island. They report that the question is worthy of serious attention. The commission believed that the principal source of oil was in a place called Kerion, and this opinion was concurred by Greek and foreign specialists who have been engaged in the oil industry at Zante. The board found that the private installations of the proprietor, Mr. Colaitis, are in good working order and suited to the purpose, and they believe that the quantity of oil which will be extracted here will be sufficient for the needs of the Greek Navy.

Analyses made in the chemical laboratory of the navy of the oil gave excellent results. The product was tried out on board the Greek destroyer *Pergamos* with very satisfactory results. At first a mixture of Russian oil and of Zante oil was tried and then replaced by the pure Zante product.

ITALY

A. NAVAL

1. Ships for Rumanian Government.

Information has been received that Messrs. C. and T. T. Pattison, of Naples, have just received a further contract for two additional destroyers for the Rumanian Government similar to those recently constructed by this firm for Rumania, except that they will be slightly larger. So far no information has been received as to the tonnage or armament of these destroyers.

NOTE.—See Rumania in this edition. These boats will probably be of about 1,700 tons.—ED.

2. Naval officers on duty in merchant vessels.

The following is a translation of royal decree No. 1784 of September 16, 1926, promulgating regulations governing the embarkment of naval officers on merchant vessels:

(*a*) In order to extend the professional training of officers of the line, of the Naval Engineering Corps, and of the Harbor Corps in permanent active service, the Ministers of Marine and of Communications are authorized to embark on steamships belonging to subsidized companies, on trans-Atlantic liners and cargo ships carrying on a regular service (provided these ships belong to Italian concerns,) subaltern officers (lietenants (junior grade) and ensigns) of the line, of the Naval Engineering Corps, and of the Harbor Corps under a "chief of group" of the rank of lieutenant or lieutenant commander.

(*b*) The period of embarkment of an officer on a merchant ship must not, as a rule, exceed six months, and will be considered to all effects equal to that performed on naval vessels in full commission.

(*c*) No merchant vessel may have more than six naval officers embarked as per article (*a*). These officers will not enter into any contract but will be entered on the list of ship's personnel and will be considered to all effects as belonging to the staff of the ship, in excess of the allowed complement.

(*d*) Subaltern officers of the line will stand watch at sea in cooperation with the officers aboard. They will cooperate with the latter in nautical calculations and will participate in the maneuvers of entering and leaving port. In port they will cooperate with the officers intrusted with discharging cargo.

The officers of the Naval Engineering Corps shall help the engineer officers aboard in their duties.

The officers of the Harbor Corps shall cooperate with the officers on board ship in the same duties prescribed for line officers, in addition to which they shall study as much as possible the organization and traffic of the ports visited, collecting information and data.

The chief of group will direct, in agreement with the ship's captain, the services of naval officers and is authorized to give them leave during visits abroad to complete their instruction.

(*e*) The chief of group and the naval officers will receive a special daily allowance of L. 16 and L. 14, respectively, in addition to the regular mess of the merchant officers. No other allowance is due to them.

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3. Communication activities.

The Italian press publishes the following information on the work of the navy in connection with radio services:

Great help was given by the royal navy ship *Citta Di Milano* in the laying of the submarine cable Anzio-Malaga, Malaga-Las Palmas, Las Palmas-Saint Vincent.

It was the navy that built the wireless station at Coltano, now turned over to private interests. The radio station at Cape Guardafui in Africa was also built by the navy. The radio stations of Rhodes, Tripoli, and Bengasi were fitted by the navy with the most modern apparatus, thus connecting directly with Rome and with Italian Eritrea and Somoliland.

At present the navy is fitting warships with powerful and up-to-date radio apparatus and is actively experimenting, especially on short-wave lengths and long-distance communications. The first experiments on a large scale in short-wave lengths were conducted in 1924 between Rome and Asmara (Eritrea, 3,900 kilometers); now a regular service has been established between the capital and the distant colony.

A radio station of the type existing at San Paolo, Rome, was inaugurated three months ago at Afgoi (Italian Somaliland), thus eliminating transit through Eritrea, which had been the method hitherto used. An installation of the same type has been fitted also at Pekin, China, thus enabling Rome to communicate directly with the capital of China, a distance of 10,000 kilometers. No other European nation has any connection that may be compared to that.

B. AERONAUTICAL

1. Civil aviation.

A recent royal decree has placed all the Italian aeronautical propaganda societies under the control of the Italian Aero Club, and the Aero Club itself is placed under the supervision of the Air Ministry, who will be able to cancel any decision of the club which it does not approve of. The Aero Club itself has been thoroughly reorganized. All communications between the Ministry of Aeronautics and private persons or concerns referring to civil aviation will have to pass through the channel of the Aero Club, with the exception of bills against the Government. All private enterprises desiring subsidies or exemptions from the Ministry of Aeronautics shall do so through the channel of the club, which will express its opinion thereon. All programs and regulations for air meets, competitions, etc., will be subject to the approval of the club. All sporting aircraft which will be inscribed on the special register of the club will enjoy special exemptions. The ministry is authorized to dissolve the managing board of the club should the necessity arise, and will annually pay lire 300,000 toward the expenses of the club, which thus becomes the official Italian aeronautical organization.

JAPAN

A. NAVAL

1 New construction.

[Source: Japanese press]

Of the ships provided for in the five-year program, construction in the coming fiscal year will be started on only two, namely, 10,000-ton cruisers.

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2. Cruiser "Furutaka."

Displacement, 7,100 tons; draft, 15 feet; length, 580 feet; beam, 50 feet; speed, 33 knots; complement, 20 officers, 600 men.

Construction: On account of the narrow beam compared to length, the *Furutaka* has been built with extra longitudinal strength. There are four decks forward and three aft, in addition to a boat deck. No. 1 deck is called the "turret deck," No. 2, the "torpedo deck." From forward the ship presents an appearance of extremely fine lines. The protective deck is 1 inch to 1½ inches in thickness, of special-treatment steel.

The blister extends only over the engine and fireroom spaces.

The forward bridge structure is divided into a series of compartments for the forward ship and fire-control stations. There is an after fire-control station abaft No. 2 stack.

Foward control station comprises the following:

Lower stations—

(1) Fire-control tower.
(2) Antisubmarine lookout and control station.
(3) Searchlight distant control station.
(4) Torpedo-control station.
(5) Radio-direction finder.
(6) Battle radio station (2).

Middle stations—

(7) Antiaircraft lookout and control station.
(8) Range finder (1 Barr & Stroud 15 feet).

Upper stations—

(9) Conning tower.
(10) Searchlight (1 Sperry 35 inch).
(11) Target-bearing station.
(12) Directorscope.

After fire-control station comprises the following:

(1) Fire-control tower.
(2) Searchlights (2 Sperry 35 inch).
(3) Range finder (1 Barr & Stroud 15 feet).

Engineering plant: 100,000 I. H. P., 4 screws,

Twelve boilers, Yarrow, Japanese Admiralty type: 10 oil burning, 2 combined oil and coal burning. Each boiler has 11 burners.

Turbines, combined Parsons, Curtis marine type. Four units, each in a separate water-tight compartment.

Fuel: 1,200 tons oil, 400 tons coal.

Radio: Marconi; two transmitting stations, both under the forward bridge; radio direction finder and radio telephone.

Main battery: Six 8-inch guns mounted in single turrets, three forward and three aft. Turrets are protected with 1-inch special treatment steel.

Electric hoists for powder and projectiles.

Turrets operated electrically for elevation and train maximum range of 22,700 yards.

No information on the director installation, probably Vickers.

Antiaircraft battery: Four 3-inch, located amidships, two starboard and two port. Two antiaircraft machine guns.

Torpedo tubes: Twelve 21-inch, located in three compartments on the main or torpedo deck.

Searchlights: Three Sperry 35 inch.

NOTE.—This vessel was completed this year. She has one sister ship, the *Kako*. Both are in commission. Jane, 1926 gives excellent photographs of these ships.—ED.

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3. Submarine "Ro–66" launched.

Submarine *Ro–66* was launched at the Mitsubishi Dockyards, Kobe, October 25, 1926.

NOTE—*Ro–66* is of 1,000 to 1,500 tons, speeds of 17.5 to 18 knots and carries 6 torpedo tubes. Nine boats in her class.—ED.

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4. Japanese naval maneuvers October 8–15, 1926.

Supreme director: Admiral Suzuki, Chief of General Staff. On board the *Settsu*.

Senior umpire: Vice Admiral Abo, Commander in Chief, Kure Naval Station. On board the *Settsu*.

COMPOSITION OF FORCES

Red Fleet (defending)

Battleships: *Mutsu*. (1–BB.)
Battle cruisers: *Kongo*. (1–CC.)
Cruisers: *Nishin*, *Kasuga*, *Yahagi*. (3–CA.)
Light cruisers: *Kiso*, *Oi*, *Tenryu*, *Natori*. (4–CL.)
Destroyers: Ninth Division, *Kuwa*, *Maki*, *Keyaki*, *Tsubaki*.

Eighteenth Division. *Isokaze*, *Hamakaze*, *Amatsukaze*, *Tokitsukaze*.

Twenty-first Division. *Sakura*, *Tachibana*, *Kaba*, *Kiri*.

Twenty-fourth Division. *Kuroshi*, *Hiroshi*, *Momo*, *Yamagi*. (16–DD.)

Submarines: Eleventh Division. *Ro–51*, *56*.

Fifteenth Division. *Ro–14*, *15*, *16*.

Sixteenth Division. *Ro–12*, *13*, *17*.

Twenty-third Division. *Ro–5*, *8*, *9*.

Twenty-second Division. *Ro–61*, *62*, *64*.

Twenty-fifth Division. *Ro–30*, *32*, *39*. (17–S.)

Submarine tender: *Kamoi*. (1–AS.)

Airplane depot ship: *Wakamiya*. (1–OCV.)

Mine sweepers: Eleventh Division. *Ayukaze*, *Uzuki*, *Hamakaze*, *Harusaki*, *Wakaba*, *Nenohi*. (6–AM.)

Air forces: Sasebo aviation corps and Omura air forces.

Land forces: Sasebo defense corps (1,200 men).

2ND ORGANIZATION FOR MANEUVERS

First Division. *Mutsu* (flag). Vice Admiral Otani in command. *Kongo* (representing 3–BB).

Second Division. Vice Admiral Hyakutake in command. *Nagato* (flag). *Kongo* (representing 3–BB).

Third Division. *Kirishima*, *Haruna* (representing 4–CC).

Third Destroyer Squadron: *Tenryu* (flag).

Ninth Division. *Makigumo*, *Kuroshio*, *Kiyonami*, *Tanikaze*.

Eighteenth Division. *Isokaze*, *Hamakaze*, *Amatsukaze*, *Tokitsukaze*.

Twenty-first Division. *Sakura*, *Tachibana*, *Kaba*, *Kiri*.

Twenty-fourth Division. *Kuroshi*, *Hiroshi*, *Momo*, *Yamagi*.

NOTE.—Twenty-first division operating as part of patrol defense of Sasebo.

Third Submarine Squadron: *Tokuyo* (flag).

Twenty-second Division.

Twenty-third Division.

Twenty-fifth Division.

NOTE.—Twenty-third division operating as part of patrol defense of Sasebo.

Fourth Submarine Squadron: *Kawasaki* (flag).

Eleventh Division.

Fifteenth Division.

Sixteenth Division.

Mine sweepers: Eleventh Mine Sweeping Division.

Air forces: *Wakamiya*, Sasebo aviation corps, Omura air force. Total of 40 planes.

Land force: Sasebo defense corps (1,200 men).

Blue Fleet (attacking)

Battleships: *Nagato* (flagship of Admiral O. Kato), *Yamashiro*, *Ise*, *Fuso*. (4–BB.)

Battle cruisers: *Kirishima*, *Hiyei* (representing BB's). (2–CC.)

Light cruisers: *Kinu*, *Jintsu*, *Abukuma*, *Naka*, *Yubari*, *Kitagami*, *Sendai*, *Yura*, *Furutaka*, *Kako*, *Isuzu*. (11–CL.)

Destroyers: First Squadron, *Yubari* (flag).

Thirteenth Division, *Nos. 4, 6, 2, 8.*

Twenty-sixth Division, *Nire*, *Toga*, *Kuri*, *Kaki.*

Twenty-seventh Division, *Hishi*, *Sumire*, *Warabi*, *Ashi.*

Twenty-eighth Division, *Yomogi*, *Hasu*, *Tade.*

Second Squadron: *Isuzu* (flag).

Third Division, *Nadakaze*, *Shiokaze*, *Shimakaze*, *Yukaze.*

Fifth Division, *Nos. 7, 3, 5, 9.*

Twenty-ninth Division, *Nos. 13, 11, 15, 17.*

Thirtieth Division, *Nos. 21, 19, 23, 25.* (31–DD.)

Submarines: First Squadron, *Kitagami* (flag), *Jingei* (tender).

Sixth Division, *Ro–59, 58, 57.*

Twenty-fourth Division, *Ro–64, 63, 68.*

Twenty-sixth Division, *Ro–61, 60, 62.*

Second Squadron: *Chogei* (tender).

Fourteenth Division, *Ro–27, 26, 28.*

Seventeenth Division, *I–52, 51.*

Seventh Division, *I–2.* (15–S.)

Supply ship: *Mamiya.* (1–AF.)

Oil tankers: *Shiriya.* (1–AO.)

Air forces: *Hosho* (carrier), *Notoro* (tender) and additional planes, totaling 50.

FIRST PERIOD, OCTOBER 8 TO 11

The Red Force assembled at Sasebo. The Blue Force assembled at Ariake-wan and both fleets carried out drills independently. The Red Force carried out a series of exercises in the attack and defense of Sasebo.

First day, October 8. Red Force proceeded to Terashima Channel. Blue Force operating off Ariake-wan.

Second day, October 9. Red Force started a combined naval, land, and air attack on Sasebo. Red made a landing at Ai-no-ura opposed by the Sasebo land forces. Air attack and bombardment of defenses of Sasebo continued during the night. Blue Force operating off Ariake-wan.

Third day, October 10. Red Force operations against Sasebo continued and were called off at 8 a. m., October 11. Blue Force operating off Ariake-wan.

Fourth day, October 11. Red Force assembled at Sasebo for conference of officers on previous two days, maneuvers. Blue Force operating off Ariake-wan.

SECOND PERIOD, OCTOBER 12 TO 15

Strategical assumptions: War exists between Japan and the United States. (The maneuver of 1925 represented the capture of Manila by the Red fleet.) Before going to the relief of Manila, Blue has decided first to seek out and destroy the Japanese fleet and has seized and established a base in the South Seas. Red has established air and submarine bases in the Southwestern Islands with the principal base at Amami-o-shima. Red has established a similar base at Goto Retto. The approaches to the Japan Sea between Okinawa, Anami, and Kyushu are guarded by submarines and patrolled by Red air forces. The main Red Fleet operating from Sasebo forces Blue in order to make contact to pass through the submarine, aircraft, and mine area between Okinawa and Kyushu.

Operations

First day, October 12. The maneuver started at 5 p. m. Red main fleet left Sasebo and proceeded toward the southern end of Kyushu. Blue left Ariake-wan and proceeded around the southern end of Kyushu. During the night Blue was subjected to air and submarine attacks. Blue air forces delivered a night attack on Sasebo.

Second day, October 13. Scouts of both fleets made contact at daylight off Kaimon Cape. Both main fleets made contact and engaged to the south of the Goto Islands. The maneuver was called off following the fleet engagement.

Third day, October 14. Conference on the maneuvers was held, all ships assembling at Sasebo.

Fourth day, October 15. Fleets dispersed to their home ports.

ANALYSIS OF MANEUVERS

The actual operations during these maneuvers were restricted on account of reduced appropriations for fuel, and it is apparent that the strategical and tactical assumptions for the exercises of the second period were broad in their scope and that there was very little preliminary operating, scouting or screening leading up to the main fleet contact on the second day of the maneuver. The air and submarine base at Amami-o-shima and the one in Goto Islands were actually established, patrols maintained, and antisubmarine nets laid.

The plan of the maneuver shows that in the event of war between Red and Blue and a decision on the part of Blue after establishing a Western Pacific base to seek out and destroy the Red fleet, that the Red fleet will, if acting on this plan:

(1) Operate on closely drawn interior lines.

(2) Will base on Sasebo.

(3) Will in case of approach of Blue from the southward and eastward, move westward through the island straits south of Kyushu.

(4) Will retire in the direction of Tsushima Straits hoping to draw Blue through the straits between Okinawa, Omami-o-shima, and Kyushu, thus exposing the Blue fleet to submarine and air attacks from bases at Okinawa, Omami and Sasebo, and then to similar attacks from Goto Islands.

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5. Steaming done by naval vessels.

According to the Japanese press, the following steaming was done by ships of the Japanese Navy during a recent month.

Class of vessel	Number of vessels of class	Number of vessels in operating status	Number of vessels of class underway during month	Average number of days underway
Battleships	6	6	4	14
Battle cruisers	4	3	2	14
Armored cruisers	7	6	3	6
Light cruisers	27	21	17	12
Destroyers	89	70	55	12
Submarines	56	41	23	9
Gunboats	13	10	9	6
Submarine tenders	4	4	4	10
Aircraft tenders	4	2	2	10
Minelayers	43	2	2	3
Mine sweepers	22	22	10	10
Oilers	13	10	7	19
Colliers	4	4	3	11

This steaming was done principally by the first and second fleets, which were engaged a part of the month in combined maneuvers and a part in individual ship exercises.

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6. Japanese naval budget for 1927–28.

According to the Japanese press the cabinet has approved the Japanese Navy budget for the fiscal year 1927–28, the figures being as follows:

[Figures below thousand are dropped]

Ordinary account	¥135, 978, 000
Extraordinary account	119, 448, 000
Total	255, 426, 000

The above is an increase over the current year's budget amounting to ¥16,357,000 (about $7,690,000).

The principal items showing increases are as follows:

Under ordinary account:	
Maintenance expenditure for new ships	¥5,903,000
Maintenance of new one-half company of aviation	600,000
Completion of compilation of naval almanac	11,000
Establishment of bureau of aeronautics	49,000
Increase in number of men in paymaster corps	30,000
Maintenance of airplanes on board airplane carrier *Akagi*	1,727,000
Increase in pay and allowances—	
Increase in allowances of cadets and students	35,000
Increase in longevity and service pay	8,000
Increase of pay for counselors	3,000
Expenditure resulting due to enlargement of scope of paying retiring allowances	564,000
Lump sum of money paid to those meeting accident while engaged in chemical armaments	9,000
Moving pictures for educational purposes	30,000
Increase in prizes	7,000
Books and printing	19,000
Increase in subsidy to naval towns	30,000
Total ordinary account	9,028,000
Under extraordinary account:	
Additional building expenditure (first year's apportionment of replacement program)	4,726,000
Removing of powder factory	300,000
Construction of oil tanks	300,000
Construction of storehouses	95,000
Improvement and extension of land radio stations	100,000
Periodical repairs to ships	300,000
Renewal of submarine batteries	500,000
Salvage equipment to float submarines	187,000
Manufacture of submarine nets	150,000
Renewal of forged articles	350,000
Renewal of shells	750,000
Manufacturing illuminating bombs	100,000
Manufacture of electrical equipment for submarines	137,000
Manufacture of short-wave radio instruments	55,000
Repairs to roofs of buildings at the various navy yards	100,000
Increase in expenditure for manufacturing articles for parties outside of navy	1,150,000
Increase in cost of making charts	39,000
Research work in chemical armaments	150,000
Research in aviation	147,000
Experimental work	100,000
Grand maneuvers	5,000,000
Surveying in South Sea waters and making of charts	85,000
Sending warships to northern waters	120,000
Investigation of reserve oil fields in southern Taiwan	40,000
Total extraordinary account	14,981,000

7. Replacement program.

It is generally reported in the vernacular and foreign press that the Minister of the Navy and the Minister of Finance have reached an agreeement on the budget for the so-called naval replacement program and that the cabinet has considered and approved the project, for submission to the Diet which meets in December.

The Minister of the Navy was pressing for a four-year building program with a budget of ¥294,000,000 providing for 4 cruisers, 16 destroyers, 5 submarines, 3 gunboats, and 5 special-service ships. The program as agreed upon provides for the following:

Budget	¥261,308,040
Tenure of building program, five years from April 1, 1927, funds allotted as follows:	
1927–28	4,725,040
1928–29	11,926,000
1929–30	88,000,000
1930–31	88,000,000
1931–32	68,657,000

Vessels:

- 4 cruisers, 10,000 tons.
- 15 destroyers, 1,700 tons.
- 4 submarines.
- 3 gunboats.
- 2 special-service ships—
  - 1 mine layer.
  - I airplane tender to replace *Wakamiya.*

The press further states that the Minister of the Navy will immediately press the adoption of the second replacement program to become effective April 1, 1931, so that the two programs will overlap one year.

It also appears that the naval officials are considerably concerned over the political difficulties of the present Government which portend the possible dissolution of the Diet, in which case the passage of the replacement program by the Diet would be delayed until a new Diet is elected under the new universal manhood suffrage law.

It should be borne in mind that this so-called "replacement" program is nothing more than a well thought out and determined expansion of the Japanese Navy. There is nothing to indicate that any vessels will be stricken from the list of effective ships when vessels under the replacement program are completed, with the possible exception of the airplane tender *Wakamiya.* The replacement program, coupled with the cruisers, destroyers, and submarines now under construction or completed in the last few years, will materially alter the relative strength of the Japanese Navy on the 5–5–3 basis of comparison.

B. AERONAUTICAL

1. Naval air expansion program.

The present naval air program calls for the creation of four and one-half additional squadrons by the end of the year 1929 and the construction of the two airplane carriers, the *Akagi* and the *Kaga*, by the end of the year 1927. At the present time the navy has 12 air squadrons, one and one-half of which were created this year. The remaining four and one-half squadrons referred to above are not yet organized. The airplane carrier *Akagi* was recently launched and placed in service. The carrier *Kaga* has not yet been completed. Funds for the above program—that is, the creation of an additional four and one-half squadrons and the construction of the carrier *Kaga*—have already been appropriated by the Diet.

The naval authorities have now proposed a second expansion program for the naval air service. This program proposes the creation in a period of 10 years, upon the completion of the present program, of 11 additional air squadrons and the following subsidiary program which it is proposed to make effective commencing with the year 1927:

(*a*) The training course at the different naval schools to be extended eight months in order to give elementary aeronautical instruction to general students.

(*b*) Cruisers to be equipped for airplane carrying service.

(*c*) The Kasumigaura air training school to be expanded into an independent naval aviation school.

(*d*) A naval air headquarters to be established in the Navy Department.

The proposal for the second air expansion program outlined above is to be considered by the authorities in the near future with a view to including estimates for a part of the expenditures called for thereunder in the budget for the fiscal year 1927–28.

The following detailed figures show the available funds for naval aviation during the fiscal year 1926–27 (April 1, 1926, to March 31, 1927):

(1) Maintenance of aviation corps	¥21,000,000
(2) Equipment	1,000,000
(3) Maintenance of airplanes carried on ships	2,000,000
(4) Equipping new ships with airplanes	1,000,000
(5) Aviation research	147,000
(6) Miscellaneous items	853,000
Total	26,000,000

The appropriation act for the fiscal year 1926–27 also carries an item of ¥8,000,000 for the completion of the construction of the car-

riers *Akagi* and *Kaga* which is separate and in addition to the figures above for aviation proper.

NOTE.—The standard strength of an active squadron is 16 planes; of a training squadron, 24 planes. The Japanese navy now has a total of about 640 planes, active and reserve.—ED.

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2. *Status of civilian aviation.*

The Department of Communications under date of November 1, 1926, issued an official statement of civilian aviation in Japan as of October 31, 1926. The following are the figures given in this statement:

(*a*) Number of civilian airplanes (all types)	82
(*b*) Number of registered aviators (all classes)	234
(*c*) Number of aero works	34
(*d*) Number of airdromes (under civilian control)	9
(*e*) Number of private aviators' training schools	17
(*f*) Number of students of private aviation schools	100
(*g*) Number of air mail routes (weekly or semiweekly service)	5
(*h*) Number of planes employed in air mail service	16
(*i*) Total number of civilian aviators killed while engaged in flight since the organization of the civilian aviation service	150

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3. *Aeronautical notes.*

a. As has been previously reported, plans are being made to expand the army air bureau so that its chief will be of coordinate rank with the Minister of War, the chief of the general staff, and the director general of military training. In order to effect this expansion and to bring under its control all affairs pertaining to the army air service, the present air bureau is to be reorganized to comprise four departments, namely, the department of general affairs, the department of experiment, the department of supply, and the department of technical service. The present chief of the air bureau, Lieut. Gen. Ikutaro Inouye, is to be promoted to the rank of full general and made chief of the expanded air bureau. The press reports that the above-described reorganization of the army air bureau will be made effective on December 1, 1926.

b. It is reported in the press that the army air bureau is preparing aeronautical maps of Japan, this work being done in conjunction with the land surveying bureau of the war department.

c. It is reported in the press that the army air school at Tokorozawa is making performance tests with large bombing machines recently purchased from Germany and France.

d. The Official Gazette of October 5, 1926, announces that 22 pilots and 10 engineer officers completed the course at the Tokorozawa army air school on September 28, 1926.

e. The obsolete cruiser *Yayoi* was sunk on August 11, 1926, in Bungo Channel by air torpedoes dropped from aircraft from the Kasumigaura naval station. This ship had previously been used as a target for 16-inch guns of the fleet which had failed to sink it.

ARMY

(*a*) Night cross-country flights using three reconnaissance planes for the purpose of studying nonstop performances and the use of illuminations were conducted by the army air school at Tokorozawa during the week, October 20–26, 1926.

(*b*) The First Air Regiment, stationed at Kagamigahara, conducted a maneuver for three days, commencing August 23, at the town of Okayama. Four "Ko" Type 4 combat planes were used. The purpose of the maneuver was to demonstrate communication between ground and plane.

(*c*) A maneuver was held during the period October 15–20 by the Fifth Air Regiment at Tachikawa for the purpose of demonstrating the feasibility of aerial communication with the Asahikawa Division in Hokkaido under assumed war-time conditions. Seven reconnaissance planes of the No. 1–B type participated while the entire division in Hokkaido was mobilized at Obihiro to work with the planes. No reports of the result obtained in this maneuver have yet been published.

(*d*) The Third Air Regiment of Kagamigahara worked with the Second and Third Regiments of heavy artillery at Mishima on October 8 and 9 in connection with spotting for artillery fire. Three planes of the reconnaissance B–type were used.

(*e*) The First Antiaircraft Regiment of Toyohashi carried out a maneuver using live ammunition on the nights of October 14 and 15 at Irakozaki village on the Atami Peninsula. In conjunction with the maneuver the new searchlight which has recently been received by that regiment was used. The press reports that this searchlight is of 1,000,000,000 candlepower. No report of the results obtained in this maneuver has yet been received.

NAVY

(*a*) The following is a summary of the account of the recent naval maneuvers held off Goto Island, Kyushu, which appeared in the October 15 issue of the Osaka Asahi newspaper:

The elements which displayed the greatest activity in the recent naval maneuvers were the airplane and the submarine. There were 30 airplanes mobilized for the maneuver, and at one time 20 planes were in the air at the same time. The total flying time at these maneuvers was 700 hours and the total distance covered was 50,000 miles. Not a single accident occurred to mar the performance of the aircraft.

(*b*) A maneuver was scheduled to be held for a week during the middle of October for the purpose of training aviators in operating against enemy planes defending fortresses. It was announced that this maneuver was to be held over the Kure Fortress and that eight Hansa and seven Avro seaplanes from the Kasumigaura Air Corps would compose the attacking force while the Hiro Air Corps and the antiaircraft gun corps attached to the Kure Fortress would operate in defense.

(*c*) Eighty-three planes participated in the air meet held at Osaka on October 2 under the auspices of the Imperial Aviation Association. Thirty-one of these planes were army machines, 12 were navy machines, and 40 were civilian planes.

(*d*) The navy of Japan has at present no separate air school. There is established in the Kasumigaura Naval Air Unit a training unit where naval aviators are trained in air work, particularly the engineering details. However, considerable agitation has arisen recently for the creation of a distinct and separate air school for the navy, and it is reported in the "Hikokai" for August, 1926, that the authorities of the navy department are convinced that such a school should be created. According to the "Hikokai," the plan, which is reported to be assuming concrete shape, is to establish a naval air school at Kasumigaura for all air work, except training in dropping of torpedoes from aircraft. As the situation is unfavorable for work of the latter kind at Kasumigaura, it is proposed to establish a branch school at the Yokosuka naval station for training in air torpedo work.

(*e*) The Ishikawajima Shipbuilding Co. has announced its decision to undertake at its dockyards the construction of airplanes, commencing immediately. Captain Yamamoto, retired, of the aviation bureau of the department of communications, has been engaged as foreman, and Major General Arikawa, retired, and Major General Nagatani, retired, have been appointed advisors. It is announced that the construction will be undertaken of the advanced types of airplanes made by the Yokosuka naval yard.

(*f*) It is reported in the local press that the navy department has decided to establish its own airplane factory at Yahama, near Oppama, where the Yokosuka naval air group is situated. At present the navy relies upon the Mitsubishi Motor Co., the Aichi Chronometer & Electric Co., the Kure arsenal and the construction branch of the Yokosuka navy yard for its supply of airplanes. It is with a view to increasing its source of supply to accord with the navy air expansion program that this new factory is to be created. The press reports of this plan state that the new factory will be constructed with funds to be provided in the next fiscal year.

(*g*) The wooden seaplane of purely Japanese design which has been under construction secretly at the Hiroshima naval arsenal since the beginning of the summer has been completed, and its trial flight, which was carried out over Hiroshima Bay recently, was pronounced a success. The type and details of construction of this seaplane have not been announced, except that the plane is made entirely in accordance with Japanese design and that it is powered with a 400-horsepower Rhone engine.

C. MILITARY

1. Visit to St. Paul's College, St. Paul's Intermediate School, and the Toshima Normal School.

Military training in universities proper is voluntary; in higher schools and college preparatory schools, the training is obligatory. The St. Paul's College and the middle school are institutions founded by the American Episcopal Board of Missions, the president and several of the instructors being Americans. The university teaches only arts and economics, but ranks with imperial universities in those two colleges. Out of some 400 students in the university proper, only 60 have volunteered to take the military drill.

In the college preparatory department one lieutenant colonel and one captain, both of the active service, are instructors. In this particular school the army officers are looked upon as a big asset in the college faculty, and they seem to have entered into the activities of the school in a way that would not, perhaps, be the case in schools not under foreign control. There are about 350 students taking the preparatory course, all of whom, of course, receive military instruction. They have 100 rifles, which are kept in gun racks in the basement of one of the school buildings. The drill witnessed was the usual close-order drill by a company together with some aim and firing exercises by a squad. The drill was not so well executed as at other schools which I visited. The foreign teachers stated that there was a great deal of opposition to this drill among the students, partly due to the time it took from an already crowded course, and others, because they thought it an infringement upon their personal liberties. All of the foreign instructors, however, were united in saying that such instruction did wonders for the school in matters of discipline, neatness, obedience to orders, and in inculcating truthfulness. Such drill also was of value in preventing the students joining in school strikes, which are getting to be somewhat of a feature in Japanese schools.

The intermediate school has about 500 students, all, of course, under military training. One hundred and fifty rifles are assigned

for their use. The instructors consist of one captain on the active list and one first lieutenant and one second lieutenant on the reserve list. The reserve officers are paid by the school. The drill observed was similar in character to that in college preparatory courses, but was performed better than the college. The students were neater in their appearance than at other middle schools visited, probably due to the fact that they have more or less foreign supervision. The course of instruction at this school was the same as in other intermediate schools.

The Toshima Normal School is said to be one of the best schools of its class in Tokyo. It has some 500 students ranging in age from 15 to 19. Normal schools for some years have had more or less military training, and their training at present is more intense than that at other classes of schools. The importance of this training in normal schools may be seen from the fact that there is one major and one captain, both on the active list, as instructors, the major being a former General Staff officer. As a matter of fact, all of the six former General Staff officers now on this duty are at normal schools.

As has been noted in other reports, normal-school graduates who have passed through the prescribed course of military training have only five months' active service with the colors.

The close-order drill witnessed was executed better than at any other schools seen, and would compare very favorably with a similar drill in the regiments of the active army. The major explained, however, that no field training of any consequence has yet been given, but that they would have three weeks in the field during the summer months. The pupils of the normal school have quite an inducement to take military training, as it shortens their term of active service from one year to five months. Here, as at other schools, great stress is laid upon " moral " training.

D. MISCELLANEOUS

1. Formosa and Saghalien oil fields.

It is learned that the newspaper reports about finding oil in Formosa were greatly exaggerated, and that no oil of any consequence had been found there.

The results in North Saghalien, also, were discouraging, and it was not believed that the oil company formed to exploit that region, could be successful. Fifty tons per day was the maximum production. There is considerable anxiety, in addition, with regard to the Russian laborers who must be employed in accordance with the

agreement with Soviet Russia. It is recognized that the workmen could stop production at any time by a strike.

NOTE.—The Saghalien fields are being exploited according to the Russo-Japanese treaty of 1925, in which a lease for such exploitation was given to Japan. Great expectations were raised in Japan on the oil propects at Saghalien at the time.—ED.

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2. Discovery of helium.

The following article appearing in the Japanese press is quoted:

The efforts of the Japanese naval authorities in their search for helium were recently rewarded by the discovery of helium in the neighborhood of the hot springs in Ashihara, Fukui Prefecture, Province of Yechizen. This place is about 10 miles north of the city of Fukui.

An expert from Kasumigaura Naval Air Station proceeded to this place October 4 and according to his report the gas is of excellent quality and can be produced in large quantity.

MEXICO

A. NAVAL

1. Purchase of warships suspended for the present.

[Source: Mexican press]

The Ministry of War and Marine has decided, with the approval of the President of the Republic, that purchase of some vessels of different types, intended for the reorganization of our navy, will be temporarily suspended.

As we were informed, this countermand is due to the fact that the public treasury is without sufficient funds to make an expenditure which the acquisition of vessels would mean, since large expenses have to be incurred in the campaign against the Yaquis.

As will be remembered, several commissioners of the Ministry of War left for the States and several European countries with instructions to purchase some coast guard vessels in order to commence adding to the navy, which, according to the proposed plan, was to be increased from year to year until a sufficient number had been acquired to insure a good maritime service capable of preventing the presence in territorial waters of filibustering or contraband ships which have lately been seen in certain zones. The advisability of purchasing a school ship, destined for use in the training of the students of the naval school, was also contemplated.

Now, in view of the new decision, instructions have been sent to the commissioners that they suspend all negotiations and return to Mexico until it might be possible to make this purchase.

NETHERLANDS

A. NAVAL

1. Comments of the Minister of Marine on the 1927 budget.

(*a*) *Reorganization of the administration of the navy.*—Deliberations have been opened with the Indies concerning reorganization of the navy. In the estimates under consideration no anticipations whatever have been made as to the outcome of these deliberations.

Retrenchment in the branch of the navy in Holland has been vigorously begun, for which purpose more extensive use is being made of conscripts.

Through these measures it has become possible to estimate the required strength of enlisted personnel in Holland for the fiscal year 1927 at about 250 men less. This reduction will probably actually be greater. A bill will shortly be submitted for modification of the conscription law, by which also it will be possible to formulate a plan for the manning of the fleet in time of peace with conscripts. A commission is engaged in studying the naval stations in order to determine whether retrenchments are possible. The internal reorganization of the department is being effected and may be expected to be completed by January 1, 1927. In drawing up these estimates it was not possible to take full account of this. Nor in this measure have any anticipations been made as to the merging of the Departments of War and Marine, which proposals will be presented to Parliament at the proper time.

(*b*) *New construction.*—The trials of the cruiser *Sumatra* were held in great part in December, 1925, but could not be completed, as it appeared that the water in the boilers contained salt. As an investigation into the cause of this and the remedying of possible defects would take much time, it was decided to follow up everything at the construction yard and to complete the vessel before holding the remaining trial runs. In May, 1926, these took place, with very satisfactory results, after which the vessel was placed in commission.

Amounts have been included to cover the work that will probably be done during 1927 on the 1924, 1925, and 1926 destroyers. The first-named vessels (1924) will in all probability be placed in commission and leave for the East Indies in 1927. It is also expected that one of the 1925 destroyers will be placed in commission.

Further, money is requested for payment of first installment for construction of two destroyers and one submarine.

The request for the destroyers occurs as a result of the condition of the old destroyers now in service, which, as already frequently stated, must be replaced. For the present the minister does not desire to go further than to replace the eight old destroyers, while this

year no money is being asked for the construction of a submarine for the East Indies. The number of submarines amounts to 13. One of these boats (the *K–I*) will within a short time be so obsolete that it can no longer be counted as of use for war. The remaining number of 12 boats will not for the present be increased. In any case, the number of destroyers must be maintained at eight.

As was previously stated, replacement of the *O–2*, *O–3*, *O–4*, and *O–5* in consequence of the age of these boats is urgently necessary and will be gradually proceeded with. The amount for first payment for the construction of a submarine, *O–12* is therefore now requested.

Thus, compared with what was allowed in the original estimates for 1926 and requested in supplementary estimates for that year, the amount of the 1927 estimates is less by the sum of Fl. 968,160.

It has been decided to drop from the list of naval forces the destroyer *Hermelijn*, belonging to the Netherlands East Indies Squadron. The vessel will be sold in the Indies.

(*c*) *Personnel.*—The following changes have been made respecting the naval personnel:

A new system has been instituted for the naval coast-guard personnel in substitution of the regulation for military coast-guard and pilot personnel.

The examination requirements for aircraft maker (B) were modified in order to make advancement to higher rating less difficult.

A gratuity was created for men on receiving a certificate as hospital apprentice.

Preliminary steps were taken for the institution of a petty officers' school.

NOTE.—See the following two articles concerning the new destroyers and submarine. The budget as outlined above was approved by the Netherlands legislature. Budget figures were given in the November BULLETIN.—ED.

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2. *New destroyers.*

The Dutch Navy Department has awarded the contract for the two 1,600-ton destroyers authorized by the 1926 building program to the Maatschappij voor Scheeps- en Werktuigenbouw (Fijenoord), of Rotterdam.

These boats will be similar to the ones now under construction.

NOTE.—These are the fifth and sixth boats in the eight-boat program. These craft are very interesting in that they are so complete. Displacement 1,600 tons, speed 35 knots, four 4.7-inch and two 3-inch antiaircraft guns, six 20.8-inch torpedo tubes, 24 mines, depth charges, and one seaplane. They are designed by Yarrow & Co. (Ltd.).—ED.

3. Preliminary specifications for a new submarine.

The following are the preliminary specifications for a submarine for the Dutch Navy which will probably be issued to the contractors in the near future:

Displacement: As small as possible.
Surface speed: 14 knots for three hours.
Surface radius: 2,500 miles at 8 knots.
Submerged speed: 8 knots for one and one-half hours.
Submerged radius: At 4 knots, 80 miles.
Depth test: 196 feet.
Torpedo tubes: Four bow, 20.86 inches by 22 feet 5.3 inches; one or two stern, 17.71 inches by 17 feet 9.78 inches.
Periscopes: Two 22 feet 3.71 inches eyepiece in conning tower.
Large conning tower: 9 feet 2.24 inches by 3 feet 11.25 inches.
M. A. N.: Four cylinder engines.
Boat able to stay 14 days in the North Sea.
No deck gun.
Two 1.572-inch machine guns on deck in water-tight compartments.
Single or double hull.
Torpedo: Weight 3,362 pounds; range 32,800 feet at 28 knots; 6,560 feet at 43 knots.

NOTE.—This will be the "O" boat appropriated for in the budget given above. The "O" boats are all designed for use in home waters and hence are all small, none yet exceeding 515 tons surface displacement.—ED.

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4. Cancellation of Bethlehem gun contracts.

It is reliably reported that the Bethlehem Steel Co. has cabled to withdraw all outstanding tenders for ordnance material, as this company had decided to abandon its ordnance plant. This telegram was received just as the local representative was about to enter into a contract with the Dutch Government for thirty-six 10.5-centimeter long-range field guns complete.

The gun and mount have been built in the United States and shipped to this country and have passed practically all the tests.

The Dutch officials appear to be very well pleased with the design, and it is believed that an attempt will be made to purchase the plans and manufacture the guns and mounts at the ordnance plant near Zaandam.

B. AERONAUTICAL

1. Naval aviation in Holland.

A commission is now investigating the advisability of abandoning the use of seaplanes in Holland, which is to be the preliminary step to the abolition of naval aviation and the concentration of all

military aviation under the army. The present Minister of War and Minister of Marine ad interim, Major Lamboody, is opposed to the use of seaplanes in the defense of Holland, and is exerting every effort to absorb the naval aviation in the army aviation. The scheme to combine the war and navy departments and for the abolition of the home navy has been temporarily held in abeyance due to the strong opposition of the press and, it is believed, the unwillingness of the Queen to take such a radical step at this time. In the meantime, however, the Minister of War is exerting himself to cut down naval activities wherever possible.

NOTE.—See the Minister's comments to this effect in the 1927 budget, given above.—ED.

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2. *Aviation equipment on board vessels of the Dutch Navy.*

The light cruisers *Java* and *Sumatra* are each equipped for carrying two small observation planes. The stowage is amidships on trucks, one on either side. The planes are handled by cranes. There are no landing devices installed. No provision is made on board for overhaul or upkeep of planes except that which can be done by the crew with usual overhaul kit.

Gasoline storage: Inside aft on main deck.

Four Fairey planes have been purchased for use on board these vessels.

The *Pelikaan* is fitted for carrying aircraft, but has never been used for this purpose. No planes provided.

Mine layers are equipped with boom for handling planes, but no planes are provided.

Destroyers are equipped with boom for handling small plane. Experiments have been made carrying old types of planes. No planes are now provided. It is probable that when the new 1,600-ton destroyers are put in commission an effort will be made to obtain planes for these vessels. However, destroyer officers are not enthusiastic about carrying planes on destroyers.

NOTE.—*Java* and *Sumatra* are new CL's of 7,050 tons; the *Pelikaan* is an East Indian marine submarine depot ship of 2,490 tons, fitted for two planes; mine layers are of various types and sizes: destroyers were described above.—ED.

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3. *Flight of three navy hydroplanes over the small Soenda Islands.*

Shortly after Allan Cobham passed over this archipelago on his flight from Europe to Australia, three hydroplanes of the Netherlands India Navy were ordered to make a test flight over the small Soenda Islands. These islands stretch eastward from Java to the island of Timor for a distance of more than 1,500 kilometers.

Twelve days elapsed from the time the planes left Surabaya until they returned, but only seven days were actually spent in flying. The total distance covered with 4,500 kilometers.

It is rumored, but not officially, that similar flights will be made from the Surabaya naval air base from time to time. The naval authorities realize the great value of the hydroplane as an auxiliary to their forces in patrolling this vast island empire. When one realizes the extent of this archipelago, which covers a longitudinal area equal to the distance between the west coast of Ireland and the eastern shores of the Black Sea, the value of swift aircraft for patrolling purposes can hardly be overestimated.

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4. Aircraft signaling.

It is reliably reported that the only system of aircraft communication that the Dutch rely on is radio; that they have removed all other means of signaling from their planes; that they have found that radio was the quickest and most reliable system. At times they use small semaphore flags or semaphore with their arms.

The Dutch do not operate their planes in conjunction with ships. They operate close to shore and maintain communication with the shore stations with radio. There are no real naval operating units in Holland, as all naval operations are confined to training.

When the *Java* and the *Sumatra* commence operating in the Dutch East Indies a system of signals will no doubt be developed.

NORWAY

A. NAVAL

1. The Norwegian naval budget.

The Norwegian naval budget calls for 12,000,000 kroner, which is almost as large as last year. No appropriation is made for new construction; the two submarines *B–5* and *B–6* now under construction are to be completed, 1.1 million kroner being appropriated for this purpose. The committee of defense proposed increasing the number of submarines to 14; that is, 4 more new ones. However, there is great opposition against the completion of the two now under construction, but it was only because of the fact that 3,000,000 kroner had already been expended on them that the completion was authorized. One hundred and fifty thousand kroner were appropriated for new flying boats. It is proposed to introduce a bill calling for the scrapping of the two oldest of the four armored coast vessels in favor of the extension of the air fleet and the submarines. The per-

sonnel is to consist of 1,400 men, long-service personnel, and 1,000 men subject to service.

NOTE.—*B–5* and *B–6* are of 413/545 tons and with speeds of 14/8.5 knots. There are six boats in this class. The two coast vessels referred to are of 3,900 tions and built in 1897.—ED.

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2. Activities of the Norwegian Navy.

The navy is under the jurisdiction of the Minister of Defense, Jacobsen. Lieutenant Commander Rolfsen is commander of the fleet and chief of the admiralty staff. The navy consists of 4 armored coast ships of about 4,000 tons, 3 destroyers of 540 tons, 29 torpedo boats, 7 submarines, 2 gunboats, 3 minelayers. The fighting properties of all these ships, with the exception of the submarines, is very slight.

Naval activities for the past year included the first training of the naval recruits from April 6 to May 15 on board the two coast-defense vessels *Eidsvold* and *Tordenskjold.* The latter was then put out of commission, while *Eidsvold* remained in commission until September as a school ship for cadets. The minelayers *Glommen* and *Laugen*, together with the two old gunboats *Brage* and *Nor*, were commissioned for six weeks in order to carry out joint maneuvers with the cadet training ships. A torpedo division was in training for three months from June 1 (minelayer *Froeya* and three torpedo boats) in order to have target practice with the coast defense vessel *Eidsvold.* Submarines also participated in these maneuvers. The six submarines are the only vessels that remain in commission the whole year. In the course of the next year the seventh submarine *B–3* will be put into commission; its trial trips are now being made. The ships *Eidsvold*, *Norge*, and the torpedo boats visited Reval during the summer, while the coast-defense ship *Tordenskjold* left for a foreign cruise at the beginning of July, touching at the ports of Christiansund, Leith, Dublin, St. Nazaire, and Newcastle.

NOTE.—A review of the organization of the Norwegian Navy was given in the October BULLETIN, while its activities for the coming year were outlined in the December BULLETIN.—ED.

RUMANIA

A. NAVAL

1. Naval activities.

In the Danube division of eight monitors only two are in full commission. The other six are in reserve with reduced crews. They

are secured alongside each other at Galatz and have only one complete crew for the six ships. Each ship is taken out once a year for exercises.

The Black Sea division (based at Constanza) were said to be in full commission, but nothing was learned regarding their operations.

Although none of the officers with whom I talked said anything regarding the immediate construction of new ships, it was learned from another source that the Government has approved the Admiralty's program of construction, but that lack of funds has prevented its execution; that now, however, money has actually been appropriated for the complete overhaul of the two 1,400-ton destroyers *Marasti* and *Marasisti* and the construction of one 600-ton submarine; and that in the new Italian loan is a provision for the construction of two 1,700-ton destroyer leaders. The reason given for the construction of the submarine at this time is that they desire to train personnel to man the other boats whenever they may be built.

The bids for the submarine and the two destroyer leaders are said to have been let to the firm of "Pattison" at Naples.

The naval bases are at Galatz on the Danube and at Constanza. At Galatz there is a floating dry dock and machine shops where ordinary repairs are made to both naval and mechant vessels. The capacity of neither was obtained, but the dock is said to take vessels of 1,500 registered tons. At Constanza there are neither docks nor repair facilities, and none are proposed on account of the difficulty of protecting them in time of war and because the harbor is small and already too congested with merchant shipping. However, a second base is considered essential, not only for their own navy but for the ships of their future allies. The mouth of the Danube is too shallow to admit to that river the ships which they hope to build or those which their allies would probably send. Their plan is to open one of the lakes along the coast. A lake to the south is recognized as the most ideal one for a base, but it is considered to be too close to the Bulgarian border. Also, a dredger which once started work there struck a submerged rock, which made the undertaking impracticable. A lake about 20 miles north of Constanza is now their objective.

NOTE.—The Rumanian Navy now consists of 2 modern destroyers of Italian design, 6 old and small torpedo boats of Austrian design, 4 modern sloops of French design, 8 Danube monitors of Austrian design and of various ages, and miscellaneous craft. This force makes Rumania the most powerful on the Black Sea after Russia.—ED.

RUSSIA

A. NAVAL

1. Renovation of Bizerta Fleet.

According to a report of the "Moniteur de la Flotte," the Soviet technical commission sent to Bizerta to examine the condition of the former Wrangel fleet lying there has decided that the following ships can be overhauled and reconditioned:

Battleship *General Alexejeff* (22,800 tons).

Cruiser *General Korniloff* (6,850 tons).

Submarine *Kamenew* (formerly *AG–22*, 360/470 tons).

Destroyers *Bespokoiny*, *Dersky*, *Puelky*, *Pospjeschny*, and *Gniewny* (1,120 tons), *Zerigo* (1,345 tons).

Submarines *Tjulen*, *Utka*, and *Burtwjesnik* (660/790 tons).

The scrapping of the following ships was recommended: Battleship *Georgi Pobjedonoszew*, yacht *Almas*, destroyer *Kapitan Ssaken*, 3 torpedo boats of 355 tons, 2 gunboats of 1,100 tons, 1 dispatch boat of 1,300 tons, 5 ice breakers, 1 mine sweeper, and 2 tugs.

NOTE.—These ships are remnants from the former Russian Black Sea Fleet, which Wrangell took with him to Bizerta upon the failure of his campaign against the Bolsheviks in 1920. They have been so long without overhaul that they will probably never be effective again.—ED.

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2. Repairs to "Gangut."

The following repair work is reported as having been carried out on the *Gangut*. This is quite possible, but unconfirmed.

All boilers have been retubed.

All turbines have been broken down and overhauled, and a higher powered reversing turbine installed.

Steam pipes replaced.

Auxiliary machinery thoroughly overhauled.

Old electrical equipment in the 12-inch turrets replaced with new.

The fire control of the 12-inch guns has been moved to the fire-control tower.

All the 12-inch guns have been replaced.

Torpedo nets have been done away with, protective cofferdams being added instead.

The Sperry compass has been installed.

Work on the installation of radio and I. C. telephones has commenced.

NOTE.—This ship is one of four battleships in the Soviet Baltic Fleet. She has been inoperative since 1917. Displaces 24,000 tons and mounts twelve 12-inch guns. Two of this class are now in commission.

3. Mine equipment of Baltic Fleet.

The submarine mines in store and on vessels of the Baltic Fleet are of three patterns:

a. Russian model 1912.

b. German type A—round.

c. German type B—cylindrical.

More than half are of type *a.*

It is rather difficult to arrive at the exact number of mines, as the supplies given in official records are some 15 to 20 per cent higher than those actually existing. Allowing for this, however, the number of mines actually available in the Leningrad and Kronstadt stores is about 4,800, of which some 600 are unfit for use.

The number of mines carried on ships is as follows:

BATTLESHIPS, CRUISERS, AND DESTROYERS

Marat (BB)	100	Zinoviev (DD)	45
Parizhskaya Kommuna (BB)	100	Stalin (DD)	45
Profintern (CA)	100	Trotsky (DD)	45
Karl Marx (DD)	45	Uritski (DD)	45
Kalinin (DD)	45	Volodarsky (DD)	45
Engels (DD)	45	Orfei (DD)	45
Lenin (DD)	45	Pryamislav (DD)	45

MINE LAYERS

9th of January	235	Amur	380
25th of October	100	Narova	600

A total of 1,890 mines.

Before the opening of the 1926 navigation season the *Karl Marx* and *Kalinin* carried 80 mines each, but this number was then reduced to 45.

All the mines carried on ships were inspected by a commission last spring.

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4. Soviet Naval Academy.

The naval school in Petrograd is a special institution for the training of junior officers for the fleet. It is directly subordinated to the chief of naval instructional establishments.

The commander is appointed by the chief of the naval instructional establishments, and is responsible for the work of the school. The school has a political commissar whose duties are defined by the regulations existing.

The school consists of instructional soviet, secretariat, educational branch, combat branch, economic branch, medical unit, club, and collective bureau.

The instructional soviet is an advisory body for considering questions concerning instruction at the school.

The chief of the educational branch is in charge of all education, except political. The "party chief" is responsible for political education, discipline, and all extra instructional work. This branch has three commissions which draw up the program of work and supervise its execution, as follows:

1. Methods of instruction.
2. Subjects of instruction.
3. Division of subjects into classes and groups.

The chief of the combat branch is in charge of the instruction in naval warfare, physical instruction, and internal discipline. The chiefs of courses are his immediate subordinates.

Courses of instruction.—The school is divided into three general and three special courses. The former are either preparatory courses for the latter, or prepare for the naval engineering or hydographic schools.

Pupils.—They are mainly young workmen and peasants. They must pass a medical examination, and fulfill the following requirements:

(*a*) *For the general course.*—Age of 13 to 16 years, and a standard of education not lower than that provided for the first (lowest) grade in the combined labor school.

(*b*) *For the special course.*—Age of 17 to 20 years, and a standard of education not lower than that provided for the second grade of the combined labor school.

Pupils attending the general courses are not considered as members of the naval service. Those attending the special courses are so considered, and have a special service obligation of one and one-half years for every year spent in these courses.

Pupils are transferred from one course to another upon satisfactory fulfillment of the conditions for such transfer. In special cases, pupils may remain two years in one course, but nobody may remain for three years.

Upon completion of the third general course, the pupils either pass to the first special course, or may enter the naval engineering or the hydrographic school, without further examinations.

Upon completion of the third special course (in the winter) and after passing examinations before a special commission appointed by the commander of the fleet, they go on an instructional cruise. After this cruise, they undergo another examination before being appointed as junior officers.

Pupils failing at the final examination will be appointed as noncommissioned officers.

Pupils leaving the school before the completion of their training are obliged to serve one year with the fleet for each year or fraction of six months or more spent at the school.

Pupils becoming incapacitated for sea service through sickness while at the school may finish the courses and be appointed to shore duty. Pupils ineligible for sea service are bound to one and one-half years' shore service for every year spent at the school.

B. AERONAUTICAL

1. Long-distance flights.

[Source: German press]

The youthful airplane industry and aeronautics in general in Soviet Russia have followed the example set by other countries and during the past two years a number of foreign flights have been carried out very successfully. Of the numerous flights made by the Russians, one of the most interesting was that last year to China. A squadron of five airplanes started from Moscow and flew over Irkutsk to Peking, via the inhospitable wastes of the great Gobi Desert—an admirable performance, furnishing information for the contemplated far eastern air service, in which Soviet Russia will be interested to a very great degree. The Russian flight is to be viewed in a certain sense as a forerunner of the German Luft Hansa flight to the Far East. The German Luft Hansa chose triple motor commercial planes, showing from the very beginning that this was not a question of a record flight with sport planes, but was based on sound air traffic principles. As is known, the Luft Hansa machines fulfilled their task and are now on the way back to Berlin from Moscow; the Russians evidenced very active interest in these flights also and gave a hearty welcome to the German planes all along the line.

This year Soviet Russia has made four large foreign flights, as follows:

1. To Persia as far as Teheran, or about 3,852 miles.
2. To Turkey as far as Angora, or about 3,603 miles.
3. To Berlin, about 1,242 miles.
4. To Germany, France, Italy, Austria, and Poland, about 4,349 miles.

These flights were made with planes designed and built in Russia. The plane used in the flight to Teheran on July 11 was a mail plane of pure Russian construction, equipped with an M–5 motor of 400 horsepower. The route led over Bostow, and from there to Baku and Teheran, and then back over the same route. The line Moscow-Baku (1,553 miles) was flown in 13 hours and 17 minutes. The arrival of the plane was welcomed in Persia by a representative of the Government and numerous spectators. One interesting point is that on the return flight the Russian pilot Maissejeff covered the route Teheran-Moscow (1,926 miles) in one day, and piloted the plane for 17 hours uninterruptedly, thus giving evidence of the ability of the Russian pilots.

A courier and mail plane (land-plane type) with a M–5—400-horsepower motor was also used by the pilot, Mesheraup (mechanic, and one passenger) for the distance flight Moscow-Sevastopol-Angora (via Batum and Tiflis) and back to Moscow. The interesting point about this flight was the route from Sevastopol over the Black Sea. Two torpedo boats were detailed to act as escorts but were unable to do anything as a heavy electric storm made it impossible to see the Russian plane. Although the Turkish coast was wrapped in a thick fog, the plane passed over the Anatolian Mountains. The plane

was given an enthusiastic welcome by the Turkish officials and numerous aeronautical enthusiasts.

The first visit of a Russian plane with Russian crew to the west was not so favorable. A commercial type RM-1 was used for this flight, which was equipped with a 260-horsepower Maybach motor. The motor was undoubtedly too weak for the heavy plane so that engine troubles arose continually as a result of overstrain, which forced the pilot to make emergency landings under the most unfavorable circumstances. Thanks to the admirable aeronautical ability of the pilot Schebanoff, all these emergency landings were successful and the pilot was able to bring his plane to Berlin where he received a hearty welcome and help to enable him to continue his flight. However, the flight had to be broken off in Westphalia, owing to fracture of the casing and damage to the piston, as a result of motor strain.

An interesting flight was made with the Russian crew Gromoff-Rudsewitsch over the route Moscow-Koenigsberg-Berlin-Paris-Rome-Vienna and back to Moscow with an all-metal courier plane equipped with a 450-horsepower Liberty motor. On this flight, which led partially along the route covered by the Dereluft Company and the German Luft Hansa service (Moscow-Berlin-Paris), Gromoff, who made a name for himself by his flight last year from Moscow to Peking, reached Koenigsberg in 6 hours and Paris in about 14 hours, after covering 1,800 miles. Gromoff and Rudsewitsch were given a hearty welcome in Berlin by representatives of the German Government, members of the Russian Embassy, and the directors of the Luft Hansa, whose guests they were, the Dereluft, and other interested circles. The stop in Berlin was very short as the pilot wished to reach Paris on his first day's journey. This he did at about 6 o'clock in the afternoon so that the Eiffel Tower was encircled by a Russian flyer for the first time. The next day the plane left Paris for Vienna—covering the most difficult part of the route—that across the Alps. After a short stop in Rome, the plane continued on to Vienna which was reached in the evening. On the second day, a distance of 1,304 miles was covered in $9\frac{1}{2}$ hours. On the third day, the pilot wished to reach Moscow via Prague and Warsaw, which he also succeeded in doing although very unfavorable weather conditions prevailed on the route between Rome and Prague so that no landing was made in the latter place.

This record flight over 10 countries within three days received the warmest recognition in the international press. About 7,100 kilometers (4,411 miles) were covered from the eastern border States to Germany, France, Switzerland, Italy, Austria, Slovakia, and Poland in 36 hours of flight. The average speed amounted to over 200 kilometers (124 miles) per hour. This record flight of Gromoff's with a biplane of Russian construction shows what great progress aeronautics and the aeronautical industry has made in Russia during recent years.

The organization of the Russian flights was vested in the Aviachim, a company, or rather an association with a membership of nearly four million, each member of which pays an annual membership fee varying from 50 kopecks to 10 rubles and more, according to the means of the individual. The membership of the Aviachim is drawn from all classes of society. The Aviachim supports numerous test stations, assists constructors and new inventions in the province of aeronautics, and as the name indicates, chemistry. The society also takes a keen interest in the life of the people and has taken a very active part in combating the grasshopper plague and other insect pests by means of airplanes which spray chemicals on the breeding grounds.

One main purpose of the Aviachim is to awaken and develop the aeronautical sense in the people. For this purpose, competitive flights are organized

within Russian territory. On the anniversary of the organization of the Aviachim in the middle of July, about 200 airplanes left for the various industrial and agricultural centers.

SWEDEN

A. NAVAL

1. Cruise of the "Fylgia."

The itinerary of this winter's cruise of the *Fylgia* to the West Indies, Caribbean Sea, and Gulf of Mexico ports was announced October 22, 1926. The ship will visit the ports enumerated. It is to be noted that a port in the United States is to be visited, namely, Savannah, Ga., February 18–22, 1927.

Changes have been made in the original schedule, as this ship was designated to carry Princess Astrid and certain members of her party to Antwerp in connection with the church ceremony of the royal wedding in Brussels.

The cruiser left Karlskrona November 2 for Malmo, where it arrived November 4 and awaited the royal guests. From Malmo the *Fylgia* went to Antwerp, sailing via Kiel Canal, and arriving November 8.

The ship departed from Antwerp November 12 and thereafter will visit:

Cadiz, St. Vincent, Cape Verde Islands, Port of Spain, San Juan, Barrios Domingo, Port au Prince, Haiti, Santiago de Cuba, Puerto Barrios, Guatemala, Vera Cruz, Savannah, Ga.; Hamilton, Bermuda; Ponta Delgada, Bordeaux, Malmo.

NOTE.—The *Fylgia* is normally used as a training ship for cadets. She was built in 1905, 5,000 tons, mounts eight 6-inch guns, and has a speed of 21.5 knots.—ED.

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2. Organization of the Swedish industries in case of war.

[Source: Swedish press]

The Minister of Defense has submitted a proposal to Parliament regarding the organization of the industries in the event of war, according to which owners of industrial plants or persons whose work may be of importance in case of mobilization have to furnish certain authorities of the army and navy with all information concerning personnel, machine works, the capacity of factories, etc., and otherwise assist in planning the war organization of industries. If such work may involve compensation upon which the parties do not agree, the case is to be settled by arbitration. Concerns belonging to the State or municipalities likewise have to give the same information. The authority to which the information is furnished

is responsible that same does not fall into the hands of strangers. A penalty of 5,000 kroner is imposed for any refusal to furnish information or if false information is furnished. The proposal is due to the initiative of the army and the navy.

SPECIAL ARTICLES

I. STATUS OF FOREIGN COUNTRIES IN REGARD TO THEIR RELATIONS WITH THE UNITED STATES

As it might be of assistance to ships or officers cruising abroad to have information concerning the status of our official relations with foreign nations and territories, there is given below a list of such countries classified on this basis. Attention is invited to the fact that the status of certain countries or areas is not definitely established, while the withdrawal or granting of recognition to any foreign government by our own is at all times possible, so that at best the following is temporary and continuously subject to change. A list similar to the following will be published every 6 months in the BULLETIN while changes in the following will be noted in this section of the BULLETIN whenever they occur.

A. Governments recognized by the United States and with whom it has direct and normal diplomatic relations

Rank of our senior representative	Country	Rank of our senior representative	Country
2	Albania.	1	Japan.[b]
1	Argentina.	2	Kingdom of the Serbs, Croats, and Slovenes.
2	Austria.		
1	Belgium.	2	Latvia.
2	Bolivia.	3	Liberia.
1	Brazil.	2	Lithuania.
2	Bulgaria.	2	Luxemburg.
1	Chile.	1	Mexico.
2	China.	4	Morocco.
2	Colombia.	2	Netherlands.
2	Costa Rica.	2	Nicaragua.[c]
1	Cuba.	2	Norway.
2	Czechoslovakia.	2	Panama.
2	Denmark.	2	Paraguay.
2	Dominican Republic.	2	Persia.
2	Egypt.	1	Peru.
2	Estonia.[a]	2	Portugal.
2	Finland.	2	Poland.
1	France.[b]	2	Rumania.
1	Germany.	2	Salvador.
1	Great Britain.[b]	2	Siam.
2	Greece.	1	Spain.
2	Guatemala.	2	Sweden.
2	Haiti.	2	Switzerland.
2	Honduras.	2	Uruguay.
2	Hungary.	2	Venezuela.
1	Italy.		

Key to above:
[a] The present spelling of the former Esthonia.
[b] See also "D" (Countries with Special Status) and "E" (Mandated Territories).
[c] The present régime in Nicaragua was recognized by the United States on November 17, 1926.

1. Ambassador extraordinary and plenipotentiary.
2. Envoy extraordinary and minister plenipotentiary.
3. Minister resident and consul general.
4. Diplomatic agent.

B. Governments which the United States has recognized but with whom it has not established normal diplomatic relations

Rank of senior U. S. representative	Country	Rank of senior U. S. representative	Country
2	Andorra.	1	Turkey.[a]
2	Liechtenstein.	2	Oman.
2	Monaco.	2	Maskat.
2	San Marino.	2	Ethiopia Abyssinia.[b]

[a] The United States maintains a High Commission in Turkey as well as consular representatives, who are functioning without exequatur. Normal relations will very likely be established upon our ratification of the Treaty of Lausanne.

[b] Normal relations will very likely be established shortly.

Key to above:
1. High Commissioner.
2. No representatives, either diplomatic or consular.

C. Governments which the United States does not recognize

Rank of our senior representative	Country	Rank of our senior representtive	Country
2	Afghanistan.	2	Yemen.
1	Ecuador.[a]	2	Nejd and Hedjaz.
2	Russia.		

[a] On July 9, 1925, recognition was withdrawn from Ecuador and though the new régime is not recognized neither country has withdrawn its representatives, diplomatic or consular. This nonrecognition is purely a transient condition.

Key to above:
1. Envoy extraordinary and minister plenipotentiary.
2. No representatives, either diplomatic or consular.

D. Countries with special status in their relations with the United States

1. Free City of Danzig.

The Government of the United States recognizes the status of the Free City of Danzig as established by the treaty of Versailles (i. e., autonomy under a high commissioner of the League of Nations). However, the foreign relations of Danzig are handled by Poland, and the United States maintains only a consul in Danzig. Flag of Danzig should be saluted here.

2. Iceland.

The United States recognizes the independence of Iceland, but the foreign relations of that country are handled by Denmark. United States has no diplomatic nor consular representatives in Iceland. The flag of Iceland should be saluted here.

3. Anglo-Egyptian Sudan.

Great Britain and Egypt exercise a condominium over this country. Neither diplomatic nor consular representatives here.

4. New Hebrides.

Great Britain and France exercise a condominium over these islands. Neither diplomatic nor consular representatives here.

NOTE.—The question of salutes in the Anglo-Egyptain Sudan and in the New Hebrides is unsettled. When more information is obtained on these questions, it will be published in the BULLETIN.

5. British Dominions (Canada, Newfoundland, Australia, New Zealand, South Africa, Irish Free State).

The status of these countries appears to be in a state of transition and their position on many questions is somewhat uncertain. In effect if not in form their status is one of complete independence. The late Imperial Conference in its report on inter-imperial relations defined the status of Great Britain (England, Wales, and Scotland) and the Dominions as follows: "They are autonomous communities, within the British Empire, equal in status, in no way subordinate one to another in any respect of their domestic or external affairs, though united by a common allegiance to the Crown, and freely associated as members of the British Commonwealth of Nations." And again, "Every self-governing member of the Empire is now master of its destiny. In fact, if not always in form, it is subject to no compulsion whatever." And further, "Equality of status, so far as Britain and the Dominions are concerned, is thus the root principle governing our inter-imperial relations." The Irish Free State is represented in Washington by a Minister Plenipotentiary, accredited by the Irish Free State to our Government. Canada is soon to have such a minister. As yet, we have no such representatives in Ireland or Canada.

The above is noted to show the trend of affairs in the British Empire. As far as our Navy is concerned there is probably as yet no alteration in the matter of salutes, visits, etc. But it appears that before long the question will be raised about saluting the Dominion flags and with Dominions which are sensitive and jealous of their independent status like the Union of South Africa, an embarrassing situation is possible to arise.

E. Mandated Territories

Many questions in regard to these territories are unsettled, and hence the status of some of them on certain questions is in doubt. Mandated territories comprise the former German and Turkish possessions, and are by the treaty of Versailles allotted to various powers under mandates of the league, which powers are to account to the Council of the League for their administration of these mandates.

In treaties with these mandatary powers, we have recognized the status of the mandate territories as established by the treaty of Versailles.

The mandates are divided into three classes, depending upon the economic, social, and political conditions in the territories concerned. The relations of these territories with the United States will be discussed below.

1. "A" mandates:

Mandated territory	Mandatary nation
Mesopotamia (now Kingdom of the Iraq)	Great Britain.
Palestine (Palestine and Transjordania)	Great Britain.
Syria (including Lebanon)	France.

Territories whose "existence as independent nations can be provisionally recognized subject to the rendering of the administered advice and assistance by the mandatary until such time as they are able to stand alone."

Our relations with these territories are more in doubt than are those under "B" and "C" mandates. We are now concluding a treaty with the King of Iraq, which recognizes his sovereignty, consistent with the mandate. We have no such treaties with Palestine and Syria. At the present time it is believed that British or French ships visiting a port in Syria or Palestine salute the mandatary flag; but, on the other hand, British ships visiting Bassra, the port of Iraq, salute the flag of the Kingdom of Iraq. What our own ships would do in visits such as these, is in doubt. It is probable that after the conclusion of our treaty with Iraq we would salute the flag of that Kingdom and not that of the mandatary, Great Britain.

2. "B" mandates:

Mandated territory	Mandatary nation
Ruanda-Urundi (a portion of former German East Africa)	Belgium.
Tanganyika (a portion of former German East Africa)	Great Britain.
French Togoland	France.
British Togoland	Great Britain.
French Cameroons	France
British Cameroons	Great Britain.

Areas administered by the mandatary under conditions which will "guarantee freedom of conscience and religion, subject only to the maintenance of public order and morals," and prohibition of the slave trade, arms, and illegal traffic, fortifications, military and naval bases, etc.

In this class of mandates, as seen by the above abbreviated definition, the power of the mandatary is much more extensive than in the case of "A" mandates, while the mandated territory possesses a correspondingly less amount of sovereignty and independence. There is little doubt but that in the case of "B" mandate territories the sovereignty should be considered as being vested in the mandatary power, and that salutes and courtesies should be rendered accordingly.

3. "C" mandates.

Mandated territory	Mandatary nation
Former German Pacific possessions, south of Equator (except Samoa and Nauru)	Australia.
Former German Pacific possessions, north of Equator	Japan.
Samoa	New Zealand.
Nauru	British Empire.
South West Africa	Union of South Africa.

Territories which "can best be administered under the laws of the mandatary and integral portions of its territory subject to the safeguards" mentioned under "B" mandates for the interest of the indigenous population.

Accordingly, these areas may be considered as being completely under the administration of the mandatary and all sovereignty being vested in the mandatary. There is in this case, then, no question concerning to whom salutes or honors should be rendered.

II. TACTICAL AND STRATEGICAL CONSIDERATIONS OF SUBMARINE TYPES

NOTE.—The following article recently appeared in the *Marine Rundschau*, of Germany. Doctor Flamm, below referred to, is a submarine expert who has made many inventions for the improvement of submarine hulls, especially in regard to submarine cruisers.—*Ed.*

In a recent issue of the *Marine Rundschau* an article appeared by Doctor Flamm in which he discussed a new Italian submarine type both from a construction and a military point of view. The military criticism stated that these submarines, of from 800 to 1,000 tons displacement, with one 4-inch gun, two machine guns, and six torpedo tubes, were extremely weak ships, possessing no great military value. It was astounding that the present Italian Navy should have built such small boats. The projected Italian submarine of 1,400 tons displacement was also considered unmodern because no noteworthy offensive and defensive power could be combined in such small displacement.

This means, therefore, that submarines of 1,400 tons and less have no military value for the Italian Navy, and the viewpoint is taken that to-day only submergible craft of greater displacement than the above-mentioned Italian type are up-to-date.

This criticism does not agree with our war experience in any way, and all military considerations regarding future submarine employment lead to a conclusion that is almost diametrically opposed to Professor Flamm's contention. In deciding the military value of submarine types, other factors are decisive than used in estimating

the value of surface war vessels. In the case of battleships and cruisers of a navy, the main criterion will be the corresponding type of the potential enemy with which it will have to fight, type against type. According to the Washington agreement of 1921–22, one might state quite rightly that a line ship of less than 35,000 tons and a cruiser of less than 10,000 tons are no longer up to date for a large modern navy, but always with the perspective that the potential enemy has such ships which time must offset with ships of at least equal quality. The case is quite different with submarines. If the question comes up for consideration as to what types of submarines are needed by any given navy, it is quite clear that the ship types of the potential enemy can not be the deciding factor. For submarines do not have to contend against these under the same conditions; the fighting power of the enemy is of no importance for the submarine. For this very reason it is quite erroneous to lay down as a general dictum that a certain displacement, a certain military value to-day, is the very least that a submarine may have. Such considerations as the following are much more pertinent in selecting the type of submarines and deciding what value the chosen type may have for the navy in question: What are the tasks to be performed by the submarines of the navy in question in the general plan of naval operations? The tasks will be partially defensive—protection of the coasts and coastal waters, cooperation in protecting the overseas imports; partly offensive—combating the enemy naval forces, independently or in cooperation with the fleet, and perhaps wreaking damage on the overseas imports of the enemy through the medium of cruiser warfare. The demands which these tasks impose on the submarines depend principally on the extent and the characteristics of the waters to be controlled; the importance of the various tasks, defensive and offensive, weighed one against the other will be decided by the broad viewpoints of warfare; extent of the coast line, dependence of the country and that of the enemy on overseas imports, strength ratio of the two fleets, etc. It thus follows that the submarines of every navy are faced with military tasks which can not be compared with those of the submarines of foreign navies; that, for example, quite other demands are made of an Italian submarine than are made of a Japanese or an American. A submarine type which would be of little value for the conditions existing in the Pacific Ocean can represent the ideal type for naval warfare in the Mediterranean. The type is defined purely by the military demands arising from the theater of the war and the projected employment.

As far as regards the dimensions of the submarine and the ratio of displacement to performance and fighting power, the following

is a brief statement of the experiences of the German submarine employment in the war:

1. The number of the available submarines and the possibility of increasing the number rapidly during the war plays an extraordinarily important rôle. It is well known that the individual submerged submarine has a very limited field of activity owing to its limited range of vision and its slow speed, and that the prospects for torpedo fire against a rapidly moving target proceeding in a zigzag course and the chances of hitting same are not favorable for a single submarine in the open sea. Only a large number of submarines working in cooperation have in general any prospects of success. Another point to be taken into consideration is that, owing to the sensitiveness of the machinery, on an average more than half of the submarines are constantly withdrawn from sea owing to repair and overhaul work. Only a fraction of the total number can be engaged in action at the same time. A large number of submarines of small displacement are much easier to build than large ones—in time of peace owing to the overburdening of the Budget, and in time of war owing to the lack of time, to the necessity of making up losses rapidly, and of increasing the number of the submarines. In discussing the value of submarine types, principal emphasis must be laid on these factors peculiar to the submarine, which will also be true for an indefinite time in the future. The main guiding thought in the development of submarine types must be to obtain the requisite military performance with the smallest possible displacement and to limit the military requirements to essentials.

2. The minimum limit for the displacement is set by the requirements of seaworthiness, range, and speed. If German submarines of only 260 tons, the *UB–I* type, extended their effectiveness in the war from Flanders to the western exit of the channel and to the west coast of France, and operated there in all kinds of weather this only showed that this displacement represents the minimum for submarines for coast protection in so far as it is not a question of protected inner waterways. The ideal type for coast defense in the broad sense on the open coast—North Sea, Mediterranean, Atlantic—is the displacement of 500 to 600 tons. Sea endurance of about three weeks, sufficient range for European ocean distances, sufficiently strong torpedo armament, and ample speed can be combined in such a type. In this limited displacement there is also the advantage of admirable maneuverability, which can not be valued too highly and which is absolutely indispensable for the attacking of rapidly moving and strongly protected targets. The German *UB–III*, developed from the direct needs of the war (from *UB–II*

on), and the French *Sirene* type, developed after the war, are examples of this class.

A larger displacement is necessary for fleet submarines which require higher speed for operations with the fleet or which for other reasons of naval warfare are obliged to remain for long periods in the open sea. However, 800 to 1,000 tons fulfill all requirements in Europe as regards sea endurance, seaworthiness, range, and speed. Submarines of this size, represented by the series *U–87/88*, which later formed the backbone of the German submarine warfare, were capable of fulfilling the highest demands of the ever-increasing theater of war. We now find this type as the predominant postwar type in all large navies—the English *L* class, the French *Requin*, the American *S* class. One can speak here of a normal type which, concurring with our war experiences, is now generally recognized by submarine experts.

3. Submarines over 1,500 tons have such a cumbersome maneuverability in a submerged state that they are considerably inferior to smaller displacements as regards the carrying out of torpedo attacks under water against rapidly moving and protected targets, and this will always be considered as the main task of the submarine. This disadvantage will not be equalized by the higher surface speed obtainable with greater displacement. Added to this is the disadvantage noted in paragraph 1—great displacement, small number.

The construction of submarines over 1,000 tons for use against warships alone is only for such navies as must reckon on territories of war of the extent of the Atlantic or Pacific Oceans. In the latter cases the need of a large fuel supply for an extraordinarily high speed leads to the increasing of the displacement. In this case, however, the unduly large displacement must be considered as a very inconvenient adjunct.

4. Submarine artillery apart from the subordinate purpose of antiaircraft defense and defense against light auxiliary warships is only of high offensive importance when the submarines are employed for commercial warfare. In the cruiser submarine, which will be discussed more fully later, the artillery requirements of more effective calibers 6 inches and more) and steady platforms result in an increasing of the dimensions, but not for the fleet submarine. This latter requires a certain minimum displacement in order to attain high speed for keeping step with the movements of the fleet (in loose formation); the tactical purpose of the fleet submarine remains the subsurface attack, for which, according to existing experiences, about 600 tons is the most favorable. A displacement of about 1,000 tons represents a proper compromise for a fleet submarine of acceptable subsurface maneuverability and good surface properties.

5. The submarine or submergible craft is inferior to an equally large type of surface ship (destroyer, cruiser) in fighting properties, speed, and buoyancy and will therefore not be able to measure up with them in surface battle and will not be able to perform these tasks, for instance, in the protection of commerce. Even a heavily armed and armor-protected submergible vessel of the future will not, as a type, control the seas. In the last analysis it will always be inferior to the battleship that is only built for surface battle and is not burdened with the weaknesses and weights of the submergible vessel (for instance, the double-engine plant), even though the difficulties of combating such a submergible vessel should undoubtedly influence the form of the naval battle. To construct a submergible vessel of large displacement (10,000 tons would be the maximum in accordance with the Washington agreement) for use in naval operations alone—that is, without the thought of using it in cruiser warfare—must therefore appear beside the point. The German submarine cruisers of the type *U–139* were projected in the summer of 1916 when artillery battles with heavily armed merchantmen was the main form of the submarine warfare outside the territorial waters.

6. The value of large displacement for the submarine in commercial warfare as a cruiser is still to be discussed. There is no question but that along this line there is a great possibility of development and justification. It requires no vivid imagination to conceive that a submarine cruiser of several thousand tons would be quite capable of carrying on a cruiser warfare like the German foreign cruisers and also fulfill all demands of search as well as the safeguarding of their crew and passengers, which was imposed by the Washington conference as generally binding on submergible craft. No armed merchantman and no convoy protected by light forces could offer resistance to such a submarine cruiser with heavy artillery and armor protection; its radius of action is almost unlimited and it can evade any superior enemy by submerging. The submarine is unsurpassed as a pirate ship; nothing can come up to it.

It is of interest to note that, according to recent English and French newspaper reports, the submarine experts of these navies are in part very skeptical regarding the value of large displacement for submarines, while opinion is fairly unanimous regarding the submarine type for coast defense and for fleet service in the large navies. As already mentioned, this can be clearly seen in the postwar building programs and quite agrees with our own. On the other hand, no articles are yet to be found in the foreign press regarding the prospects of employing large submarines in cruiser warfare. Intentional silence on this delicate subject is quite comprehensible.

But even if the value and the justification of the use of the submarine cruiser for this purpose meet with acceptation, and when it is not considered out of the question that technical development will give the large submergible ship in the future a new and as yet inconceivable rôle in naval warfare, the tasks that to-day are reserved to the smaller displacements will also remain good in the future; for they can not be assumed by the large, heavy, submergible vessel. The development of the latter can only be directed toward the carrying out of its main activities with the weapons of surface warfare. The task of the smaller types, the real submarine, is and remains preponderantly the torpedo attack under water.

If one reexamines the new Italian submarines of 800 to 1,000 tons and 1,400 tons, which induced this discussion, one can only come to the conclusion that the submarines planned by the Italian Navy are in no way behind the times, but that rather the displacement of 800 to 1,000 tons, according to all experiences in the use of submarines, will produce an ideal high-seas submarine which is commensurate with all the requirements of a naval war in the Mediterranean. A displacement of 1,400 tons must therefore seem to be more than sufficient.

Whether the Italian Navy considers naval warfare outside of the Mediterranean is naturally beyond our knowledge. But that the main tasks of the Italian Navy lie in the Mediterranean is without question, and armament and equipment must primarily be adapted to these main tasks.

III. THE NAVAL STRATEGIC PRINCIPLES OF THE WEAKER SEA POWERS

By Commander Gadow, German Navy

In the history of the development of nations there are early indications of a very unequal distribution of those elements which make for the growth of sea power, thereby affecting the general welfare and external political influences. Alongside of the powerful seafaring nations, comprising those which are able to impose their strategic will, paired with essential ability and supported by a geographical position which objectively permits the exercise of the control of the seas and commerce lanes as well as the outlying provinces, there are other nations in which some or all of these requisites are lacking and which must therefore perforce occupy an inferior position and thus often enough fall a victim to these stronger nations or become objects of conquest. We must consider the will and the necessity for overseas commerce as the driving forces, since in all

ages that strange and dangerous element, the sea, has forced mankind to develop the characteristics of courage and self-reliance. The geographic-strategic position, in itself not less important and decisive in its effect on the course of national growth, is the one requirement which remains worthless without the other above-mentioned properties, and which, with their assistance, may often be greatly improved.

Among the ancients who sought to derive great profit from sea power as a result of their native ability and their position on the coast, the Greeks and the Romans were predominant, while the Persians, on the other hand, attempted only half-heartedly to conquer Asia Minor and the Ægean Islands without full appreciation of the importance of this position. Also the Turks and the Italian Republics in the Middle Ages showed great zeal and desire for sea power, while the Normans, Portuguese, Spanish, and Dutch followed the same course in the oceanic epochs.

In every example of sea power of the highest order we find these three requisites united, while disintegration always followed closely on the neglect of political aims and the deterioration of the art. There is lacking any example in history where a power occupying an initially favorable naval strategic position has been completely conquered by an enemy power, but a number of cases may be cited of disintegration as a result of the shift or abandonment of certain commerce lanes and economic forces, such as that during the epoch of discovery, from the Mediterranean to the Atlantic. We then find that those nations won an advantage which were the first to establish powerful connections in these new fields of force—i. e., which expanded and improved their strategic influence correspondingly, such as was done at various times by Portugal, Spain, Holland, and France—while the final victory went to those nations which most strongly defended and consolidated these new positions as a result of their native initiative and energy—foremost of all, England.

In accordance with this unequal distribution of favors, the nations were divided into greater and smaller sea powers even before the outbreak of the World War, although the distinction was not always sharply drawn. Thus, for example, it is doubtful if nations like Germany and Russia, which lack such a strategic position, should be numbered among the larger naval powers in the strict sense of the word. The strength of their naval forces alone would have justified this designation only in the event that their superiority over their rivals were sufficient to counterbalance the disadvantages of position and assure them of actual control of the overseas commerce of the world. As matters actually stood, however, Germany controlled only the commerce lanes in the Baltic, and therefore those of her enemy, Russia, while the latter nation controlled practically none at all.

The inauguration of the submarine warfare first brought Germany nearer this goal. Thus only a victorious conclusion of the war could have confirmed the place of these two nations on the seas, as, for example, if Russia had gained a free outlet to the ocean or Germany had acquired a position on the English Channel or the Atlantic, such as was vaguely hinted in our "war aims."

As a result of the disastrous termination of the war, both of these nations were definitely eliminated from the ranks of the great powers, and with the arms conference in Washington a new order was established in which England, the United States, Japan, France, and Italy were classified as the "five great naval powers."

However, in the light of the above-mentioned requirements and conditions it would appear that the inclusion of Italy was more in the nature of a diplomatic and polite gesture, as the position of that nation can only be regarded as of naval strategic importance with respect to a restricted area of the inland sea. Still, we shall include this nation in our study, as there are several interesting points to be brought out in this connection and her position is representative of that of some of the smaller powers not included in the Washington pact which have a geographical position on the seacoast and an organized naval force at their disposition. With regards to all these nations, unless proved otherwise, it must be assumed that the organization of their naval forces is based on naval strategic considerations, although the same may not always be realized in the national consciousness.

Since this essay treats of geographical-political matters and not of world powers as such, the subject matter will be grouped in accordance with ocean areas, as their properties and outlines frequently determine the relations existing between the nations bordering on these waters. For reasons which must be evident, Germany must lie outside the scope of this study. We shall start with the European waters.

BALTIC

This northern European inland sea shows the characteristic splitting up of the nations in a most extraordinary manner. Although frequently under the domination of a single power in the past, it is today surrounded by a group of larger and smaller nations of which no single one at present has the prospect of exercising control, thereby prescribing the rules of commerce for the others or excluding foreign influences. A glance at the traffic lanes leading to the ocean, of which only a few pass by Stockholm and central Sweden, shows them to be concentrated near the Belt and the Sund (i. e., the Belt, Sund, and the Kiel Canal), so that the control of these waters implies a considerable increase in power with corresponding naval strength. The

control of the sea will then have as its main object the western and central Baltic, as was shown by the war. It may be assumed with regards to the very small nations that they will not set their aims so high. Rather, there are certain large powers outside of this area who have extended or desire to extend their sphere of influence over these waters. Such nations are primarily opposed by Russia as the defender of the Baltic and at the same time a contender herself for this dominating position. This country will be considered first.

Russia's advance along the shores of the Baltic, supplanting Swedish domination in the early part of the eighteenth century, was her first attempt to improve her strategically unfavorable position whereby she was shut off from the open seas. Not satisfied with the narrow "Kronstadt window" opening to the westward, she extended her conquest in 1807 over all of Finland, including the Aaland Island, as well as the present-day Estonia, Latvia, and Lithuania on both sides of the Gulf of Finland to the northern Baltic, thus acquiring a number of useful harbors such as Libau, Windau, Pernau, Reval, and Helsingfors, representing complete economic and strategic control of the northern, and at times the whole, Baltic. It was ever the geographic fate of Russia that here as elsewhere in other localities, in her efforts to reach the open sea (Black Sea, Persian Gulf, and Manchuria), these openings invariably emptied into connecting bodies of water either flanked or controlled by strong powers, thus barring her last egress to the world oceans and retarding her ascendency as a world power. All of her efforts to carry these victories further were doomed to failure. The ambitious attempt of Czar Paul in 1800 to unite the Baltic powers by the "armed neutrality pact" to secure the rights of neutral shipping and to oppose the British control of the Danish Straits was shattered on the apprehensive opposition of the world powers, who foresaw the far-reaching consequences of this project. As a result of the raid on Copenhagen and the destruction of the Danish Fleet in 1801, all of these plans were brought to nought. The subsequent attempts of the Russians to find a substitute outlet to the Arctic Ocean on the Murman coast did not prove entirely adequate, in spite of certain advantages therefrom which became apparent during the World War. The outcome of the last war, however, cost Russia the greater part of her still relatively favorable seaports, and she found herself restricted to the Kronstadt Bight and the two outlets on the Arctic Ocean. The direction of her future efforts must take is therefore clear, namely, the reconstruction of her fleet and the regaining of her lost coastwise positions, particularly the Baltic harbors, on account of their great importance to her commerce and the trade with the interior. Finland appears to be threatened. On the other hand the conquest of northern Sweden and Norway, which have been coveted at times by Russia, offers not the slightest

inducement, but only strategic weakness. Danger to these countries can only come from a one-sided domination of the seas by the present-day bolshevistic Russia.

Conquests of this nature are always carried out by the military forces on land, being only supported by or in joint operation with the forces afloat. The further development and the strategic aims of the present-day Russian Navy must be in accordance with these factors. With the present-day economic situation in Soviet Russia there can hardly be any question of a real fleet program. The naval forces available for active service consist of the remains of the former imperial navy comprehensively reorganized. In the last year's maneuvers, this fleet consisted of 2 strong relatively modern battleships, at least 2 serviceable cruisers, about 25 destroyers and torpedo boats, 10 submarines, 60 airplanes, together with a corresponding number of patrol and mine vessels. These men-of-war, although of doubtful value with respect to fighting effectiveness and soundness, may be considered as the nucleus of a sea power to be further developed, which may in time become of great effectiveness. Her greatest enemy, not only with regard to the neighboring overseas trade routes but to direct coast defense, is England. Since the downfall of German domination in the Baltic, the English Fleet has brought these waters under its policy for the "control of the seas." Certain definite divisions of the Atlantic Fleet, such as the II Cruiser Squadron and the Fifth Destroyer Flotilla have been regularly assigned to strategic stations in the Baltic for the past three years. The fighting forces necessary to combat any warlike moves on the part of Russia may be found in the reserve battleship squadrons at Portland. The Baltic is one of the few localities where England may bring pressure to bear on her ancient enemy in the Orient. Although, strictly speaking, the overseas commerce from Kronstadt is not very great, still the trade with the Baltic ports is sufficiently vital to Russia to make a blockade really effective as a military measure. This threat is only temporarily diminished by the fact that England is at present interested in this same trade. In the event of an unavoidable conflict her interests would lie in the maintenance of the sovereignty of the Baltic States and the free access to their ports, from which she derives benefit and profit.

As we have already seen, Russia's interest would be directly the opposite. With any further expansion of the Russian sea power the gravity of these conflicting interests will increase.

The small Baltic States of Estonia and Latvia have been characterized as the storm center of the conflicting interests of the larger powers. Their aims and politics have shown certain divergent tendencies, although up until very recently their fates have been closely intertwined. United until the middle of the fourteenth century as an

independent state, they reached a high degree of culture and prosperity, but they then fell into the hands of the Swedes and Poles, respectively, and finally they were annexed to Russia in the Baltic conquests of Peter the Great. Their common fate is to be realized in the fact that both have the same interests at sea—the Gulf of Riga—and that both nations show many points of similarity with respect to their internal economic and social structure. With regard to the economic side as characterized to-day, agriculture is predominant (about one-fourth farming, one-half cattle raising, and one-fourth forestry), with great neglect of the industrial interests, so that while both States were bolshevistic at first they are now overwhelmingly peasant in population and therefore antibolshevistic. Further, both are dependent on the Peipus and Pleskau Lakes, which empty through other inland bodies of water into the Düna, and therefore, according to the opinion expressed by Moltke, they are admirably adapted for a sort of limiting protectorate to the eastward on account of the prevailing agricultural activities and their semi-independence as "east German Baltic provinces," even under Russian rule. One point of difference lies in the fact that Estonia is populated by a single race, with a common speech, from south of the Gulf of Finland to the northern bank of the Gulf of Riga, including the outlying islands, while Latvia, with a population only 75 per cent pure Lett, approaches closer to the conception of a national state and shows less national unity. From the standpoint of the subject of this essay it is important for us to note that Estonia possesses a greater and more experienced seagoing population than Latvia.

At the same time, however, the common fate and the position of both countries would appear to place the seal of unity on these two nations, such as found expression politically in the recent military agreement and in their common foreign policies. England is the real creator of these two petty States, which she regards in the nature of a barrier against Russia and as rich provinces open to exploitation. The dangerous intentions of Russia were clearly brought to light by the communistic revolt in Reval on December 1, 1924. Both States, whose national existence can only be regarded as the result of the upheaval and the reconstruction of 1919 as their cultural foundation is wholly inadequate, must look for political affiliations to the westward. A step in this direction is evidenced by the agreement between Estonia and England for the use of the island of Dagö and Osel in the event of war. It is doubtful if England will further extend the expression of this agreement by a definite treaty. This appears to be hardly necessary as the policy of self-preservation of these Baltic communities can scarcely take any other course, since the frequent attempts of France to unite with this entente of eastern Baltic nations, as well as with Lithuania, has consistently failed be-

cause the interests of these small nations is centered along the coast of the Baltic.

With regard to the naval armament of these two dwarf States, nothing much can be asserted aside from the fact that Latvia has four as yet uncompleted torpedo boats and submarines, while Estonia possesses two gunboats and three torpedo boats. Their purpose may be encompassed by police patrol duty, surveying, and similar activities, as well as the national pride, which finds expression in an independent navy which is in a position to exchange courtesies with friendy foreign men-of-war.

Lithuania, continuing her fight for Memel with great ardor and at enmity with Poland and Russia, with the support of England, leads a very precarious national existence. Threatened with complete extinction as a result of the devastation of her forests, she has still announced a fleet-building program. We can hardly speak of a purpose in this connection. Matters lie quite differently with respect to Poland. As much as one may be inclined to deny the prospect of future national existence to this nation which has been repeatedly wiped from the list of nations both politically and economically, we must concede that this country shows evidence of more intense national and cultural forces at play than any of the other Baltic States. It is well known that when this nation was reestablished as such, her political desires encompassed a territory comprising Lithuania, West Prussia, and East Prussia on the Baltic, and extending over Galicia and the Ukraine along the Dnieper as far as the Black Sea. In the compromise effected by the allied powers much of this territory was struck out, primarily Lithuania and East Prussia, in so far as our study is concerned, but the western border was drawn closely in accordance with the Polish claims. These powers supported the plebescite deception in east Upper Silesia and in a few of the German Provinces, and gave Poland direct access to the sea by the creation of the preposterous and unnatural west Prussian corridor. As a result of English machinations Danzig remained a free city under the protection of the League of Nations, but the direction of her foreign policy, however, passed into the hands of the Poles.

The naval strategic aims of Poland are to be sought in the claims still remaining unsatisfied under this present arrangement. The ceaseless campaign of agitation carried on against the independence of Danzig, which has not been entirely without success, in spite of English resistance, and which is shown by Polish military occupation of the Westerplatte, indicates that further and more severe attacks will threaten as soon as the pompous establishment of the naval and commercial harbor of Edingen fails as a result of lack of means and necessity. In the whole history of the past there

has been no Polish Navy or merchant marine in existence. In so far as Poland is concerned it is possible and far better for her to arrange her commercial traffic requirement by means of transit agreements similar to those made by Switzerland, Hungary, and Czechoslovakia. The free activities of the Polish commercial houses in Danzig are subject to no restrictions. In spite of this, however, her national pride and lusts exceed her requirements and drive her to attempt the conquest of those remaining positions of which even the peace treaty did not dare deprive the Germans. This strife is continued from Hela to Polangen on the coast of Lithuania, around East Prussia, as well as the other smaller Baltic States, and is chiefly supported by France, who can not place sufficient barriers between Germany and Russia.

In any event, for the time being the English policy in this connection parallels the French, as proven by the resignation of the English High Commissioner at Danzig and his replacement by the anti-German Dutchman van Hamel.

The close interests of France in the naval strategic aims of Poland found expression in the creation of a "Baltic division" of her fleet after the war, which has since been abolished. Later, the French destroyer divisions visited the Baltic ports and Edingen in order to maintain friendly relations with the newly created Polish Navy. The fact that these connections are not stronger and that France has withdrawn more from the Baltic lies in the Anglo-French conflict of interests, which does not permit France to establish strategic connections crossing English zones of influence nor allow her to cultivate those waters where England also seeks to assert her superiority. Under the influence of these restrictive conditions as well as her poor financial situation, we see the Polish seafaring ambitions beginning to crumble. The construction of the fleet, consisting to-day of 2 gunboats, and 5 torpedo boats, 4 mine-sweeping boats, 1 submarine chaser as well as a few auxiliaries and river craft, is pompously declared by the Polish press to be for the purpose of insuring a landing point for their French allies, while at the same time it threatens German communications with East Prussia and the safety of the Baltic commerce.

The size of the naval administrative machinery and Admiralty, which has been established, appears to indicate that great future expansion is contemplated. In any event, certain very powerful forces are holding Poland in a state of political uncertainty, and even though such politicians as Lloyd-George predicted her early downfall, one must still take into consideration, for the time being, her several naval strategic aims.

The most tangible and solid foundation for an independent national existence, combined with commerce and an active naval force, among all the northern Baltic States is shown by Finland.

History, position, and development had all contributed to make their country rife for independence after the yoke of Swedish and Russian domination had been thrown off. The greatest factor being that such independence was fought for instead of being presented by foreigners. The patriotic principles are founded on a recognition of the Swedish-Finnish dualism. The aims of her foreign policy are to obtain the support of Sweden and of Russia's enemies, and protection against Russia. Further aims, such as the occupation of East Kerelien and the peninsula of Kola, can never be conceded by Russia, since the occupation of this territory involves control of the Murman coast and the Arctic Ocean. In the north, Finland already possesses the necessary communication with the ice-free northern ocean through her occupation of the Potschenga Bight and Fischer Peninsula, which she will be able to use to advantage in the ore agreements which will probably be made later. Her strategic aims will be primarily restricted to the safeguarding of her border and the protection of her southern overseas communication instead of dreaming of further expansion. The close flanking of the exit from Kronstadt by a strong naval power or a third power allied with Finland constitutes a direct threat to the Russian position. In any event, as is the case of the other Baltic States, the aim of Russia will be to reestablish her previous position, or at least to keep both banks of the Finnish Bight in Russian hands. However, in this case there is not the inducement of an ice-free harbor which Russia so badly needs for her interior, so that the threat against Finland becomes less pronounced. Still in all, a Finland which desires an independent existence must face every possibility. Therefore, the purpose of her naval armament must be for the protection of her southern harbors and her overseas commerce lanes to the southern Baltic.

At present, however, the means at her disposal are scarcely adequate to fulfill the first part of this mission. Her naval forces, consisting of six gunboats, five torpedo boats, and two submarines, appear to be appropriately constituted, on English advice, provided that adequate means for mine laying and air reconnaissance are not lacking for the defense of the barriers. The construction of these auxiliaries has been delayed as a result of parliamentary difficulties. Further protection can only be obtained by alliance with a strong sea power.

In the case of Sweden we touch on another group of Baltic States having different tendencies, which are characterized, first by a long historical existence and, secondly, by the position near the exits of the Baltic. With its long stretch of sea coast and harbors in the northern Baltic, Sweden participates in some of the problems of the northern sea areas, while her southern and western provinces

make her a participant in the question of the ocean straits and the world commerce. With regard to the security of her northern boundary, the creation of an independent Finland brought with it great relief, so that the maintenance of this state and the establishment of good relations with this neighbor is of vital interest to Sweden. With regard to the security of her overseas trade, she is faced with a problem similar to that of Finland. Aside from the question of direct coast protection, unless she wishes to rely on the support of England, she can not dispense with a strong naval force, and with only her 12 coast-defense cruisers, some of which are very old, her position is not enviable. At the same time the three ships of the *Sverige* class, if maintained in fighting trim, represent a not inconsiderable force, and would be adequate to fulfill their mission, together with the available torpedo boats, submarines and aircraft, provided the socialistic government had not made a breech in the national will of the people and advocated a disarmament program, which must leave the fate of the nation entirely in foreign hands. Above the phantom of a socialistic solution of all international and social problems, this energetic and highly cultured nation threatens to fall between the grindstones of two powerful nations, which in themselves embody anything but this same peaceful socialistic idea. With the loss of external independence, their internal freedom of self-determination will be sacrificed and foreign ideals will be substituted for their proper aims. The pedantic poverty of thought of this school, which refuses to recognize the needs of the nation and consider only humanity, seriously threatens the future of Sweden. For the present, instead of reducing her naval forces, as planned, to a point where they are only adequate for coast patrol, she should expand her navy and training to prepare for battle on the high seas, the natural culmination of naval warfare, which has the mission of protecting overseas commerce. In her rôle as protector of the straits, which on the Swedish side consists of a channel only 6 meters deep with rocky and sharp shoals of little value from a military and economic standpoint, Sweden is faced with one of the most difficult naval strategic problems.

Fate has deprived Denmark, which was once predominantly powerful—comprising at times all Scandinavia, the shores of the Baltic and England—of all except the nucleus, namely, an extraordinarily important position on the most fought-over straits in the world. The great ocean commerce lanes, in so far as same do not pass through the Kiel Canal directly to the Baltic, lead the deep-draft vessels to the Swedish harbors on the Cattegat and to Copenhagen, from which points the cargo is transshipped in coastwise vessels. The southern exit from the Sund is also only 6 meters deep on the Danish side (Drogden). The fact that the Sund can

be so easily blocked, even for small craft, merchant vessels, torpedo boats, and submarines cruising on the surface, makes both of the Belts of great strategic importance, since the narrowest and most difficult channel through each may be effectively barricaded as a military measure. The State guarding this passage has therefore been either much courted or threatened by the great powers and practically always stood between England and Russia. The fatal consequences of her first alignment with Russia have already been mentioned. The same events were repeated in 1807, when England grew suspicious of the intentions of the united powers—Prussia, France, and Russia—with regard to the independence of Denmark. For a second time Copenhagen was blockaded and her fleet destroyed. Further, in the World War, as in the past, England demanded free passage through these straits, which was opposed by another Baltic State—this time Germany—while Denmark herself participated in the blockade. This time also Denmark found herself in the position of a football between two great powers, and it is not to be wondered at that with the historical experience of the past she was anxious to abandon that precarious rôle. We might remark that the situation to-day has become even more dangerous to that nation, since she not only stands between two perpetual enemies, England and Russia, each striving to realize contrary aims (England for free passage and control of the seas and Russia for the "mare clausum"), but the Anglo-French conflict of interests already mentioned in connection with Poland threatens to involve Denmark as well.

As one of those nations which profited by the war and as a land opponent or neighbor of Germany, Denmark must favor the French political system, while as a seafaring nation she is in jeopardy from England and Russia. Thus we can understand, better than in the case of Sweden, how the idea of disarmament and the renunciation of a political rôle, which is strategically important but too dangerous, can be favored by that small nation. What might be an extremely favorable position in strong hands, as it once was, becomes fatal for a weak nation (compare with Turkey).

The carrying out of the Danish disarmament program has, however, been temporarily halted. The rape of north Schleswig, though approved by the deepest national consciousness, appears to be jeopardized. After Locarno, there was a certain respite, and she attempted to negotiate a similar treaty with Germany in which the loss of this territory should be "voluntarily" recognized. Until such time she would remain under arms.

The naval forces, consisting of five obsolete coast defense vessels, about a dozen destroyers and submarines with some aircraft, would be adequate primarily to block and safeguard the Flansburg Förde as well as the Alsensund and Little Belt, thus covering the eastern

wing of the land forces, provided we assume the intention of Germany to attack. The above covers practically the entire mission of the Danish Fleet, aside from the protection of the trade with Iceland and the supervision of the territorial waters, which, as shown by the experience in the late war, is not a difficult problem in this case.

With Norway we reach the open sea and therefore an exceptionally favorable external geo-political position, which, however, is not supported by a correspondingly great industrial development or a large population. This nation is principally engaged in seafaring occupations, having made war and conquests at times when other nations in Europe scarcely dared venture on the seas, trading, and in the service of other nations since the beginnings of commercial development in Europe. Norway acquired considerable wealth in freights and wages in addition to the profit derived from their fisheries. This completely one-sided development of her industry did not permit her to vacillate between the great sea power of England and the restricted semi-sea power of Germany; all the more, since a blockaded central Europe became an even better customer than ever for the products of her fisheries. In this manner they derived extraordinary profits from this favorable conjunction of circumstances, in relation to which the losses she suffered to her shipping as a result of military measures became negligible. Her merchant fleet has again reached 2.6 million tons.

The basis of her industrial development as well as the intrinsic value of her strategic-political situation, obviates the necessity for naval forces to defend her overseas communications against enemies which might threaten her position, as in the case of Sweden or the east Baltic countries. Her mission is therefore simply to protect territorial waters and harbors against aggression in time of war, in so far as the strength of the enemy might permit. On the other hand, still more important as concerns the daily life of the population—to render aid to shipping and the fishing fleets—matters which can be amply cared for by her force of 4 old coast-defense vessels and 9 gunboats, as well as about 30 larger and smaller torpedo boats, 8 submarines, and a number of aircraft.

THE NETHERLANDS

United in the fifteenth century with Flanders, Artois Hennegau, and Luxemburg as a rich State in Burgundy in opposition to the Hansa League, this country finally separated entirely from the Empire under Charles V. Her formal independence in 1648 inaugurated an era of great prosperity as a free commercial State, whose source of strength lay in her excellent position controlling the mouth of the richest system of rivers in Germany and the seamanlike qualities of her population of low German origin. Strong enough in

the seventeenth century to maintain their position against the aggressions on land from the Spanish and the Hapsburgs by the blockade of the Schelde and to prevent the development of Antwerp, they were able to maintain their sovereign independence through the centuries by the circumstance of being the object of the rival interests of the powerful nations—Germany, England, and France. Their short period of reunion with Flanders (1815–1830) came too late to be of advantage to either country and was soon rectified, since Holland derived much greater profit as a completely independent nation. Although she was supplanted in her position as the foremost naval power of northern Europe in her three wars with England in the seventeenth century, she was able to salvage some of her most important foreign possessions, which formerly extended over the entire globe (North America, Central America, South Africa, and India), and which to-day form the foundation of her prosperity. Her two main strategic problems of defense to-day are based on two requirements due to her position: The safeguarding of her independence; and that of her overseas possessions.

It has already been stated that the best assurance for the independence of Holland lies in the balance of power of the three neighboring nations. This fact saved that country during the World War and not her own watchfulness and high state of military preparedness, which functioned in an unbiased manner in spite of strong predisposition toward the side of the allied powers, since any concessions to one side would have led to reprisals from the other side. However, Holland's power availed nothing against the strong superiority of England's naval forces, and she was ruthlessly forced into the blockade and the English blacklist system, and was compelled to place her merchant vessels at the disposal of the allied powers to the same extent as the northern countries. Although such war conditions can hardly be repeated, in so far as it is humanly possible to estimate the future, it still follows that the military forces of the Netherlands can hardly be considered as more than a patrol force, which is able at most to warn and support the coast defense, but which can not effectively protect her overseas commerce against a powerful enemy. It would appear, therefore, as we shall see, that it is useless for Holland to support a fleet of powerful battleships for the protection of the home country. Rather the mission of the home forces should be the protection of the country against her neighbors to the southward in addition to the previously mentioned problems. There has been a dispute of over 200 years' standing between these States, as we have seen, with regard to the Wielingen Channel and the free passage of the Schelde. For Holland the possession of both banks of the Schelde is bound up with the safety of the country, but it must be granted that this question, which originally

rose from the commercial rivalry between Antwerp and Rotterdam, has to-day lost some of its strategic importance, since a war between Belgium and Holland is hardly conceivable, and in the event of such a war the participation of other large powers with present-day military weapons would shift the decision away from the Scheldt. This point of view has doubtless done much to convince the representatives of these people, who in themselves are not anxious to arm, of the uselessness of further strengthening the naval forces in home waters. The Government fleet program for the home forces contemplates 4 armored gunboats, 13 mine layers, 12 submarines (2 of which are equipped for mine laying), 2 tenders for submarines, an adequate supply of mines as well as 60 aircraft, to which are added the two-thirds previously commissioned older armored coast-defense vessels and the ships formerly available. This force must be considered fully adequate for this mission, for the command of their territorial waters, and the requirements of their defensive measures. The protection of their East Indian colonies will be treated under the section pertaining to east Asiatic waters, since the entire naval forces of the Netherlands need not, as in the case of the other powers, be considered as strategically united with the forces stationed in the home waters.

With regards to Belgium, which since the war has rejoiced in the possession of her own men-of-war, namely, 1 French training ship, 1 English gunboat, and 14 former German 44 torpedo boats, it will be difficult to determine any naval strategic principles.

The effectiveness of this dwarf navy created since the war can only be exceedingly small. As we have seen, the conflict with Holland is not longer a burning question, while such a force is absolutely meaningless for the protection of the country against a powerful naval opponent or for the support of her colonies. France may be regarded as the originator of this "naval armament" on the part of Belgium since she has also taken great interest in the construction of the strategic railroads on the coast of Flanders. However, the attempt made to draw Belgium into the sphere of French politics, as has been done since the time of Louis XIV with the support of the Walloons in that country, was shattered by the watchfulness of England, who has again resumed her rôle as protector of Belgian neutrality, and took occasion in the treaty of Locarno to emphasize the necessity for this independence. (Chamberlain's memorandum of February, 1925.) Belgium has also frequently shown her ability to draw the line between her own and the French interest (Ruhr occupation, commercial treaties, Geneva Council question) since with her threatened colonial possessions she does not dare become involved in a fundamental conflict with England. Under these conditions, the Belgian naval forces can not be considered in the light

of outposts for the French, such as the Polish Navy, nor can the coast of Flanders be regarded as a French harbor.

EAST ATLANTIC

Portugal has been the firm ally of Great Britain since the Napoleonic wars and forms for her a bridgehead over the peninsula of the Pyrenees. Her once proud position as conqueror and world power now forgotten, she can not check the admixture of colored blood in her race, and must be numbered among the decadent nations, which continue to exist as apparently sovereign nations under the protection of a stronger power. Some very valuable portions still remain of her colonial empire, which are out of all proportion to the mother country and to her general industrial development and cultural ability. The sole mission of her naval forces, consisting of 3 obsolete battleships, 12 modern gunboats, 11 torpedo boats, and 4 submarines, with a few aircraft, is colonial service, river and harbor patrol, and general supervision of her territorial waters.

In this there is a wide field of activity, as may be seen from a glance at the Portuguese possessions, which are widely scattered from the Azores to Macao. It is still a question, however, as to how long this rapidly dying country can count on holding these possessions, and a decision must soon be reached as to whether part of these colonies should not be apportioned among others that need them or those who could make better use of them from the standpoint of world industry. England, having always assumed a sort of protectorate over this country, indicates that she is to be considered as the business spokesman for this nation in such a question. Interesting developments are to be expected if England should confirm the sale of eight English cruisers to Portugal as planned. This would be the first attempt to profit by the result of the arms conference in Geneva in 1925, in which England managed to specifically exclude men-of-war and their armament from these provisions, and at the same time she is enabled to circumvent the disarmament conference.

Spain must also with equal justice be regarded as an Atlantic power, although the larger part of her coast line borders on the Mediterranean. Her interests in the Atlantic, which must be served by her naval forces, stand in close relationship to the balance of her colonial empire; namely, the Canary Islands (a very valuable and much coveted strategic possession) and the less promising coast land of Morocco, which appears in the light of wasted effort on account of the attempts of France to monopolize the whole of North Africa and the probable struggle for independence in that area which

may follow later. In time of war, the Canary Islands must be protected by naval forces from attacks from the sea as well as violations of neutrality, and require therefor, their safeguarding and protection, not only by shore fortifications, but by medium-sized fighting ships as well as the accessories of modern warfare. Another side to the Spanish requirements in the Atlantic is to be seen in the recently promulgated policy of resuming relations with the former Spanish countries in South America. Although this policy does not contemplate a strong political alliance, but only the resumption of the cultural and traditional entente (to be cultivated as a sort of reaction toward the Americanization of the continent), still this necessitates the showing of the flag by men-of-war.

MEDITERRANEAN

On her second front Spain faces the Mediterranean, and therefore necessarily becomes a factor and participant in an area filled with conflicting interests. The well-known clash between English and French interests in the western Mediterranean must draw Spain in its wake. Aside from the importance of her line of communications with Spanish Morocco, which promises very little of value to Spain from either a strategic or material standpoint, the most important arteries of trade for her industry from the eastern ports lie along the coast and pass through the straits into the open sea. With the interference of shipping from and to Barcelona, Valencia, Alicante, Murcia, Almeria, and Malaga, Spanish industry, although not disrupted completely on account of the emergency ports of egress on the northwestern coast, would still be seriously crippled. For Spain therefore it is politically and strategically essential that she establish a neutral traffic zone along her coast (as done during the World War) and that she seek the support of all the strong naval powers for this project, and in the second place that she so construct and organize her naval forces that these are enabled to furnish effective protection for this zone and to perform the necessary convoy service. With regard to her political tendencies it was thought about three years ago that a lively rapprochement with England and Italy would be brought about which would take the form of naval agreement, and was regarded with deep suspicion by France. Meanwhile the erratic politics of Italy have done much to weaken these relations, and France has been enabled to bring about a community of interests with Spain in regard to the Moroccan question and establish new relations which that country can not afford to neglect. Without doubt, however, the relations with England are still being strongly maintained through naval-political and dynamic interests, such as is evidenced by the frequent utilization of the Balearic Islands by

the English Fleet (Polenza Bight) and the participation of the English arms industry (Armstrong in Ferrol) in the new construction work for the Spanish Fleet.

In accordance with the above, Spain will therefore not be able to forego the support of a nucleus fighting force of strong battleships together with a not too small number of light cruisers which might on occasion be used effectively against strong commerce destroyers. An engagement with strong battleship squadrons does not appear to lie within the realm of necessity. The two small battleships at present available (the third was lost in 1923) appear to be capable of fulfilling this mission in so far as armanent is concerned but are inadequate from the standpoint of speed and numbers, and their disposition in time of war will be accompanied with great difficulty. It might perhaps be better to have a force of armored cruisers in their place. There are also available five serviceable fast cruisers and six flotilla leaders or large destroyers, together with an adequate number of torpedo boats, aircraft, and submarines, all well planned as constituent parts of the fleet and suitable for the above-mentioned strategic mission if correspondingly trained. Possibly Spain may be able to release sufficient forces, when the Moroccan question is settled, to properly build up her sea power and therefore to serve her general political requirements and aims. The construction of 3 cruisers of 10,000 tons, 3 destroyers, and 12 submarines, which was approved by royal decree in July, 1926, indicates her present policy in this connection.

In our introduction we made a brief statement as to the reasons why Italy should be classed among the smaller naval powers—a question which is naturally two-sided. A technical opinion will not be expressed. The references to the once great Roman Empire—a favorite propaganda term of to-day and from whose dissolution the Italian race was only able to extricate itself with the aid of a strong admixture of Germanic elements—offer to-day more of an appeal to sentiment than to common sense. The fact of the matter is that Italy, which is essentially a country surrounded by seacoasts and geopolitically a seafaring nation, has remained as the arbiter of an inland sea only; like Germany, she developed her national aspirations too late to participate in the new overseas industrial areas and commerce lanes and could therefore not improve her naval strategic situation in the imperialistic sense. The necessary trade foundations were also lacking to warrant such a display of force, since she possesses no raw material for industrial development or even an agricultural development sufficient for her own needs, as in the case of France. The increase in the Italian population, which is regarded

with great pride, brings about a necessity for expansion, which must be seriously taken into consideration.

These forces have been at work for some time. The urge for overseas possessions led Italy at first toward Abyssinia (1881) (Erythrea) and Somiland, where, thanks to her rapprochement with England, she was enabled in 1924 to occupy a portion of British East Africa at the tip of Dschuba. The commercial value of this occupied territory, in which a desert climate prevails, is limited, while its favorable strategic location on the Red Sea and the Indian Ocean is largely nullified on account of the lack of harbors. Of hardly greater importance was the loot she obtained from the Turkish War in 1912—Tripoli with Cyrenaica, principally a stretch of land along the coast with a desert interior, only small harbors and without the future promise of the richer French territory lying farther to the westward. The Dodecanes, which she has occupied since 1911 with their purely Greek population, will be a constant bone of contention with Greece. The rounding off and expansion of these colonial territories and the reconquest of her former possessions on shore is the thinly veiled goal of the new Italy, as announced by her press. At the border of Tripoli, Tunis lies enticingly with her much more favorable commercial opportunities and promises. Italy's strong participation in emigration to Tunis and the deliberate suppression of these Italians under French domination goes far to strain the relations between the two countries. Further, her desire to reacquire the former Genoese possession of Corsica, and finally the country of origin of their dynasty, Savoy, including all of the Riviera, plays an important rôle in the ambitious program of this nation. All of these aspirations, with the possible exception of Savoy, are in accordance with a sound line of strategic and political development, and their realization would materially improve the position of Italy. Corsica, in the hands of an enemy, constitutes a difficult problem of defense, as shown clearly by the superior position of the French fleet air station base at Bonifacio in relation to the military port of Maddalena on the island of Sardinia. Therefore, a shift of the Italian base to the southwest side of Sardinia appears to be desirable (fortification of the Islands of S. Pietro and S. Antico). For the same reason a base has been desired at the southwest point of Sicily. With the possession of two or more such bases there is given a greater possibility for effective blockading of the Tyrrhenian Sea (with opening of between 120 and 130 nautical miles) and an effective position on the flank of the straits between Sicily and the northern projection of Tunis, i. e., a considerable increase in the possibility of dominating an important area of the straits through which heavy traffic must pass.

The unsolved portion of the problem lies in the fact that she is less concerned with strategic progress of the French rival interests

in the Mediterranean (whose vital interests are concentrated in the western portion and her line of communications with North Africa) than with England, who must feel that one of her most important commerce lanes is threatened. The English counterbalance to this lies, of course, at Malta, from which point through her control she is able to impose restrictions on the Italian aims. Thus the position of the powers has a triangular character and one can realize the possibility of various combinations. Italy, therefore, can deal properly and forcefully, if she mixes in this combination, and so long as she refuses to become involved in any one-sided relationship. Under these conditions there are all kinds of political combinations, the first test of which occurred in the funding of the national debt to England, as was shown in the early part of 1926. Although it is possible that other influences might have brought to bear, such as the Italian support of England in questions in Asia Minor, still the value of the Italian balance of power is of importance to England, and this, as we have seen, is strongly influenced by the naval strategic tendencies. In comparison with these factors, which have caused Italy to turn her face toward the southwest—in conformity with the outline of her coast—the Ægean and the Adriatic questions must occupy a secondary place. The situation in the Ægean is considered as holding great promise for the future, and Italy is on the point of fortifying the Island of Rhodes. The deciding factor in these latter plans is the Italian claim for predominance in the eastern Mediterranean and in their preparation for a more extensive policy, which might be possible if an upheaval occurred in the balance of power of the leading sea powers. The Adriatic will be considered in connection with Yugoslavia.

The Italian naval forces, on the strength of which great and posisibly too extensive aspirations are built, must needs have great fighting effectiveness if these plans are to be realized. These must be in a position to act with either France or England as a strong naval ally, i. e., her battle squadrons must equal those of France or about the half of those of England.

At the present moment these requirements can not be quite fulfilled. An increase in Italian fighting strength by the construction of five battleships, which, in accordance with the agreements of the Washington Conference, may be laid down in 1927, would have great effect, since France, who has the same right, will hardly find the means to carry out such a program in addition to supporting her powerful armaments on land and in the air. Meanwhile such intentions have not been noised abroad, and it would be premature to make such an announcement before the whole question of naval disarmament had been definitely cleared up. Therefore the strengthening of her military forces has been confined to the construction of cruisers and

smaller craft, namely, seaplanes and coastal motor boats (200 units), where Italy has an advantage in that her land frontiers no longer require the employment of great forces for their protection. The number of her cruisers—at present 10 to 12—deserves to be increased, while the available monitors and gunboats, which can render valuable service in the Adriatic or with her colonies, appears to be adequate. The possession of 27 fast and strong flotilla leaders, together with 40 destroyers and 70 to 80 smaller torpedo boats and about 20 larger and smaller submarines, constitutes a not inconsiderable sea power, which need only be kept in an efficient state as regards matériel—a typical "fleet in being"—in order to exert a favorable influence on the future of Italy, though that nation should not reach the heights of the old "Imperio Romano."

Little can be stated at present with respect to the question of sea power in the Adriatic, although it is the probable intention of Yugoslavia, whose strong solidarity has left its imprint on the whole of the Balkans, to develop along these lines and to strengthen her connections at sea. But a repetition of the pre-war situation, in which the Austro-Hungarian monarchy, with its lively overseas trade lanes through the Adriatic, could be cut off by Italy, while at the same time Austria threatened Italy from the rear, is at present hardly probable. Even Yugoslavia, which might grow into a strong industrial nation, will scarcely strive for supremacy in the Adriatic—although a conflict in this area is sooner to be expected from the aggressive policies of Italy, which have been unnecessarily pushed both strategically and economically with regard to Fiume and Austria, and whose intentions with respect to Dalmatia and Albania constitute an overbearing display of power. Such a display of aggression can only be justified if Yugoslavia should show intentions of developing the Dalmatian position for the exercise of naval and political power.

In our opinion, however, this is hardly to be expected, but it would rather appear that Yugoslavia has only her fishing interests and patrol duties to look after in these waters, and her tendency will be to follow the natural contours of her country and find her principal outlet to the sea at Saloniki. There, however, she encounters the Greek barrier, and interferes with the line of communication between Macedonia and Thrace, of which Greece can not be deprived but which represents an inorganic appendage to the Greek Peninsula. In any event, the situation must be regarded in this light in so far as Yugoslavia is concerned. A Greece which once occupied all of Thrace, Constantinople, and the Straits, as well as Asia Minor, might regard the situation differently. A decision in a problem so full of complications such as frequently occurs in Europe will depend on many things. With present world policies, in which the

great powers assure the right of self-determination to the smaller nations, these questions are now settled by compromise instead of by a trial of strength, and in such matters as free zones and transit areas an agreement may be brought about. The present naval armament of Yugoslavia is properly restricted to a few river gunboats, as well as 12 torpedo boats, 6 mine layers, and 4 mine sweepers for Dalmatia.

Greece finds herself in a very inferior position as a result of the events following the war. All of the advantages which she had hoped to derive from the much-vaunted policies of Venizelos have failed to materialize. Asia Minor and eastern Thrace have been lost, while Italy expands in the Ægean Sea and occupies Corfu, in order that she may control both gates to the Straits of Otranto. This is doubtless an unnecessary display of strength brought about by the need of the Duce to establish his prestige in external matters. As far as concerns Greece, which is torn with internal dissension, all efforts must be concentrated on the maintenance of her position, defense against foreign invasion, and the protection against attack to which her overseas commerce is exposed. The reconstruction of her fleet, which is demanded by England, is primarily for the purpose of countering and opposing the Italian aspirations. But, even failing this, it is desirable for England to be able to avail herself of the services of a partner in the distant Ægean and the Straits who must, willy nilly, become involved in these disputes. With regards to the naval forces we may enumerate: Two recently overhauled small battleships, 1 armored and 1 protected cruiser, about 20 torpedo boats (10 of which are of the larger type), and 7 submarines (some of which are new). These naval forces are scarcely adequate for the safeguarding of the coast and the service of convoy which requires a greater strength than is now available.

BLACK SEA

Bulgaria has been shut off from the Black Sea as a result of the peace terms, but strives to gain an outlet on the Ægean coast (Dedeagatsh). Nothing much need be stated with regard to her naval strategic problems and her five small torpedo boats.

Rumania, with a greatly increased coast line, is too busily occupied in protecting her land frontiers and safeguarding her war loot (particularly Bessarabia) against threatened invasion, to devote much time to the building up of her naval establishment, especially in view of the fact that with the opening of the Dardanelles she is no longer as helplessly exposed to the threat of a powerful neighbor. With regard to her naval vessels—7 armored gunboats, 7 small gunboats, 2 destroyers, and 6 torpedo boats—the only ones which

need be considered for duty in the open sea are the two serviceable destroyers, which, under capable command, might be effective. On the whole, Rumania can only protect herself at sea with a support of some powerful naval ally.

The position of Russia in the Black Sea has been decisively altered by the treaty of Lausanne. In place of her former domination, with the Dardanelles closed, and with no mention of the occupation of Constantinople promised her during the war, she finds the straits nominally in the hands of a commission under Turkish supervision (but in reality open to any enemy), which exercises jurisdiction over the treaty requirements regarding closure, which no nation has undertaken to guarantee. While Turkey has gained in national strength by the removal of the capital from her former key position to Angora, Russia's position has been weakened. Her strategic mission to-day consists of the defense of one of her most valuable possessions—the oil wells in Georgia, which were in English hands when the red chaos came in time to force the retirement of the invading army. It may, perhaps, be going too far to designate this protection as a naval strategic problem, since such large industrial projects are not acquired nowadays by force of arms—however, any attempts against their exploitation or efforts toward their destruction either as political reprisals or through the support of the independence of Georgia, must be prevented by force of arms on land and at sea. And in any event the line of communication Batum Crimea-Odessa must be safeguarded. In relation to the other border States, her effective naval forces give her superior political power, restricted, however, by the threat of the open door of the straits, which shows again how great is the influence of English sea power and politics (provided her hands are free) even in this inland sea and areas previously closed off to her. In the Black Sea we find a second locality where sea power can be made effective against the previously unassailable position of Russia on land. This dependence of Russia on position, which is ordained by nature and by her historical development, shows at the same time, that the conflict between England and Russia is fundamental and can only be overcome by the destruction of the British World Empire. Before Russia can accomplish this purpose (and we doubt this possibility very much) she must maintain peace with her European neighbors or she can not hope to build up an overseas commerce which will be safe from destruction.

Some interruption has always occurred, however, every time there appeared to offer a possibility of a Russian understanding or rapprochement with England, as, for example, in 1907 with regard to Persia. At such times Russia becomes the aggressor, attempting

to extend her land frontiers to the southward. The fate of eastern Europe has rested largely on the outcome of this interplay of forces between the strongest naval and the most potentially powerful land power. As to how this will continue will depend among other things, on the future relative strength of the two nations, the degree of unity of purpose of the central and eastern European nations, and certainly, upon the Russian possession of sea power in the Baltic and the Black Sea.

The Russian Black Sea Fleet, during the time the Dardanelles were closed, represented more of a local power than one of far-reaching effectiveness, and was only important in that it bound certain British naval forces to the Mediterranean. This force rarely exceeded four serviceable battleships, and even to-day, after the war, it is still inferior to the Baltic forces. Martial zeal, discipline, and tradition have always been weak in this force.

Russian Black Sea forces (which are listed as from 1 to 2 battleships, 2 cruisers, 10 large torpedo boats, and 5 modern submarines, of which only a few are serviceable) might be made into an effective force, provided the well-known difficulties with regard to training and material could be overcome.

Turkey, however, can not entirely escape from this influence, since the important overseas communications between Constantinople-Trebizond are not yet replaced by railroad connections. This, together with the long stretch of northern coast, necessitates the maintenance of sea power, and Turkey is acting correctly in seeking to build up a fleet which will be capable of protecting her coast and commerce. To this is added the necessity of protecting the Bosporus and her capital. In addition to 2 cruisers, 9 gunboats, and 9 torpedo boats, there are a few others, such as the *Goeben*, which might be reconditioned. Without sea power the position of Turkey with respect to Russia is considerably weakened, although this is not entirely decisive.

ASIA

In passing, we shall glance at the recently adopted plan of England to develop an independent navy for India, or rather to increase the force which has already been started. As a reason for this rather surprising step, it has been stated that the development of the country as an independent dominion necessitates the expansion of her means of self-protection. However, it is certain that this demand did not originate with the natives themselves, since nothing is further from the mind of the Hindu or Bengali than the exercise of sea power. It is comprehensible, in view of the English taxpayers' aversion to further expenditures for armament (particularly after the deliberate present made to Italy) that a way had to be sought to

shift a part of this burden on to the Indian budget. The opposition there to be encountered would be appeased, it was hoped, by the flattering promise of independence for India, while at the same time educational influences will be at work to lead the Indian Parliament to develop this line of thought and to put through the necessary enacting measures. Finally, it removes the appearance of aggression against Japan from the East Asian politics of England, if this force can be designated as the Indian defense forces, instead of the far eastern naval forces. On the whole, it is a very clever maneuver, which bears the imprint of the technical cunning to which England is forced to resort in her present-day embarrassment. Native Indians are to be admitted into the commissioned ranks in this navy, which, for the present, will be held within narrow limits. Naturally, there is no idea of having the entire commissioned personnel consist of natives.

These measures stand somewhat in opposition to the naval policy of control as agreed upon by the other Dominions, namely, South Africa, Australia, and New Zealand, where the tendency has been rather to break away from an independent naval establishment, in favor of a unified British naval command, with regular exchange of personnel and vessels. However, these matters are in a state of flux and are of no great importance here.

The French naval forces in Indo-China do not represent a unified sea power and may be passed over in this discussion as well as those of the Siamese Navy.

The Dutch East Indian Fleet may be regarded as an independent force, as has already been stated by the mother country. The much-debated fleet program for the Dutch East Indies provides for certain necessary new construction which may be realized in the course of time, namely, 2 cruisers, 4 flotilla leaders, 12 destroyers, 9 mine layers, 16 submarines (2 equipped as mine layers), 1 submarine tender and adequate air forces, besides the present available forces consisting of 1 small armored vessel, 2 large gunboats, 6 large and 3 small torpedo boats, and about 8 submarines of the smaller type. All in all, the above represents a rather powerful defensive force, whose strategic mission is primarily the defense of these possessions against Japanese aggression. The defense is planned for concentration at Java, which occupies a key position with respect to the trade lanes through the archipelago. The basic idea of Dutch strategy is that these forces will be able to stand off any attacking force, until some other power, interested in the preservation of the independence of the Dutch East Indies, can come to her aid. It is apparent that England is the only nation in question as a partner in this connection, and her valuable oil concessions in northern Borneo would be the first point exposed to Japanese attack. The fundamental prin-

ciple of Dutch armament, which should be written in letters of fire on the national consciousness of all small seafaring nations is "a power whose destiny may be decided on the seas should exert her utmost strength to cooperate in this matter if she is not to become the puppet of other nations." The above-mentioned naval forces are adequate for this purpose, as well as for the patrolling and policing of the territorial waters and the maintenance of Dutch rule over the native population. In accordance with recently published news items, this rule is strongly influenced by the "yellow movement." It should be mentioned in this connection that the future of the present-day system of eastern colonial possessions depends more on this "yellow movement" than on the gunboats of the colonial powers, although these and associated means of exercising power may serve to avert catastrophies and lighten the period of transition until such time as new relations, not to be foreseen at present, can be established between the white conqueror and the colored native.

AMERICA

We shall touch only briefly on Canada, which is striving more and more to reduce her participation in British sea power, and to restrict her naval establishment to the nominal support of a small number of vessels. For these forces there can hardly exist a strategic problem on account of the overwhelming superiority of the neighboring Union, but they can render service as coast patrols and in the supervision of fisheries. Finally we shall briefly discuss the Latin republics in Central and South America in so far as these nations are represented at sea. All of the nations on this continent are characterized by the fact that, in spite of the large populations which some of them support, they have no imperialistic aims nor desire to extend their influence oversea.

With the full development of their resources and exploitation of their territory as yet incomplete, the aspirations of even the greatest of these nations are confined to the continent, and, since all of them require the influx of foreign population and capital to develop their resources, they occupy the position of dependents in relation to the older and more settled industrial countries. This situation practically excludes the exercise of forceful foreign policies on a large scale, and the military problems are confined to the safeguarding of their frontiers and protection against invasion (compare Chile-Peru dispute over Tacna Arica). These common vital requirements of all the South American countries, in spite of other points of difference, give this continent a certain aspect of unity, much stronger than Europe, Asia, or Africa, but which is too dependent to assert a definite influence or international politics. (Compare in this respect the attempt of Brazil at Geneva in 1926, to assert herself as the

representative of all of the South American interests, as well as the effort to call a "Bolivar Congress" to found a Pan American league of nations.)

The aims of the United States, which has been the first to recognize the independence of these southern States, have been to consolidate this sensible unity in the form of a community of interests with North America, and to gradually assume for herself the rôle of protector and recognized arbiter of Pan American interests. Behind this idea lies, doubtless, somewhat grasping imperialistic tendencies, which seek to construct something which does not exist, and which can not be regarded by the other powers, nor by South America itself, with equanimity. Opposition to this tendency is therefore growing, although the continental international relations are still rather weak and the economic influence of the United States, increased by the crisis in Europe, is still too powerful. At the same time the Central and South American States are striving with all their power to maintain their full independence and therefore have generally decided against any abandonment of their naval armaments, which can not be dispensed with if their real sovereignty is to be protected.

The three nations possessing the greatest economic strength—the A. B. C nations—although very differently constituted in the mass, find their greatest security and well-being in a state of balanced power. This is expressed, not without deliberate intent, in their naval armaments, which in all three nations includes a nucleus of two battleships of about equal fighting strength (except for the older Chilean ships) which have been retained. With respect to gunboats and torpedo boats the forces are about equal, while in submarines Chile is somewhat ahead of Argentina. Peru has 2 cruisers, 1 gunboat, 1 torpedo boat, and 2 submarines, while the other States have only a few gunboats and torpedo boats. The mission of these forces must necessarily be very restricted and can only extend to the protection of the territorial waters, which as shown by the war, limit the extent of their political influence. It is to be regretted, however, in the interests of these States themselves that Chile, for example, was not sufficiently powerful during the war to prevent English violation of her neutrality. A strong and responsible Government could have rendered better service in upholding the neutrality rights of small nations than by resorting to lengthy negotiations at Geneva. This should serve as a warning in the future to those South American States which are exposed at all times to such violations.

CONCLUSION

Our summary of the smaller sea powers shows great divergence on the whole, in so far as pertains to their naval and political pos-

sibilities and ambitions. It appears, therefore, rather difficult to find a common denominator for these varied factors, but it is not justifiable to lump them all together and to deny their right to be classified as "naval powers." The smaller nations lead their own existence and must strive to remain unmolested amongst the struggles and conflicts of the greater powers. Although in some cases it might appear that the maintenance of a naval establishment were rather far-fetched and actuated by a desire to increase prestige, still no one can deny the right of even the smallest nation to an estimate of her own strategic situation and her future.

In a large number of cases we encountered a pronounced dependency on the larger sea powers. What about the situation, however, in case one of these, and that one England, with her primarily superior sea power, were to disappear? We have to point out in all seriousness the shift in naval supremacy which has occurred in recent years. The omnipresence of the English Fleet has been very problematical since the naval disarmament conference in Washington, and this, at the very moment when two great problems of sea power with which England has to contend, from the Finnish Bight over the Mediterranean to the Yellow Sea, have become burning issues. The first disarmament attack on the part of the United States was answered by England, as well as by several other powers, by a relative increase in cruisers and small craft. The absolute numbers have been considerably diminished in comparison with former times. Her assured superiority over any possible combination of powers has been lost, and in her place the United States, with vastly greater tangible economic assets, is now making her influence felt in world politics. This implies, as may easily be seen, a measurable reduction in British world leadership, which was based primarily on sea power, and thereby she has lost her capacity and readiness to support the aims of the smaller nations which traditionally followed in the English wake against the medium and larger sized nations. One can hardly speak of an increased international security founded on the Geneva system. Therefore, the small nations will be more than ever thrown on their own responsibility in guarding their fate, and it appears to us that this increase of the naval establishments, worthy of free nations, must be regarded in this light.

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OFFICE OF NAVAL INTELLIGENCE
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Officer	Initials	Date received	Date forwarded
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Executive Officer			
Gunnery Officer			
Navigation Officer			
First Lieutenant			
Engineer Officer			
Asst. F. C. Officer			
Communication Officer			
Medical Officer			
Supply Officer			
First Division Officer			
Second Division Officer			
Third Division Officer			
Fourth Division Officer			
Fifth Division Officer			
Sixth Division Officer			
Marine Officer			
"V" Division Officer			
"A" Division Officer			
"B" Division Officer			
"E" Division Officer			
"M" Division Officer			
"N" Division Officer			
"R" Division Officer			
Radio Officer			

The material for the BULLETIN is largely derived from service sources and its interest and value are correspondingly dependent upon the number and character of the reports received by the Office of Naval Intelligence from our own officers. In this connection the observations of officers afloat are of great value, particularly if the reports rendered are drawn up in accordance with existing intelligence instructions.

While political and economic information is undoubtedly of much use, the collection of military information should come first in the intelligence work of cruising ships.

NOTICE

The contents of this number of the BULLETIN are based upon information received in the Office of Naval Intelligence between December 26 and January 28, inclusive.

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ARGENTINA

A. NAVAL

1. Naval maneuvers.

Upon the completion of the leave period granted the instruction division the vessels of that division will leave from the naval base at Puerto Belgrano for New Gulf, about 300 miles south, and will base on Puerto Madryn.

The vessels of the squadron will engage in torpedo practice and tactical exercises, in which they will be joined by the battleships and the torpedo boats.

Following the above-mentioned exercises, the entire squadron will return to Mar del Plata and, as has been customary in previous years, will carry on long-range target practice. The best vessel in gunnery efficiency will win what is known as the "efficiency prize." When the exercises are completed the Minister of Marine will conduct a naval review, after which all units will return to their bases for general overhaul and the release of the naval conscripts of the 1904 class upon completion of their two years of naval service.

The Minister of Marine, on board the cruiser *Buenos Aires*, will leave from Puerto Belgrano to be present at the short-range target practice which the vessels of the navy are conducting in Golfo Nuevo. Upon the completion of the practice he will proceed to Puerto Deseado, a port on the Atlantic in the territory of Santa Cruz, approximately in the latitude of 47° 45′ south, for the purpose of determining the availability of this port for a naval base.

NOTE.—The instruction division comprises about all of the active combatant units of the Argentine Navy. The improvement and extension of naval bases was provided for in the naval expansion program recently adopted.—ED.

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2. Target practice on the "Rivadavia."

The target, which is more or less similar to our battle targets, under tow of the battleship *Moreno*, left the anchorage off Mar del Plata (new port) and proceeded under escort of two naval vessels

on a southeasterly course to a position approximately in latitude 37° 57′ south, longitude 57° 10′ west, where the course was changed to east and the speed to approximately 7 knots.

At 10 a. m. the battleship *Rivadavia* cast loose from the pier and when towed clear of the harbor proceeded in the general direction of the target, followed by the cruiser *Buenos Aires* and the torpedo boats *La Plata* and *Jujuy*. Upon clearing the breakwater the *Jujuy* proceeded to take up a position astern of the target. Shortly thereafter two F-5-L's and one Dornier-Wall airplanes took station to observe the fall of shot.

The President of the Argentine Republic, the Minister of War, a commission from the Argentine Congress, and some invited guests of the President were on board the cruiser *Buenos Aires*. The Minister of Marine, a separate investigating committee of the Argentine Congress, and officers from the gunnery school and from other Argentine war vessels were on board the firing ship, the flagship of Rear Admiral A. Renard.

The diagram of the firing included a zone of fire whose westerly limit was a line making an angle of 70° with the course of the target and whose easterly limit was a line making an angle of 110° with the course of the target: the firing ship's position was on the arc of a circle of 19,700 yards, whose center was approximately 40 yards to the southward of the center of the battle target.

On the starboard beam of the *Moreno* was the dispatch vessel *Azopardo* and on the port beam one of the vessels purchased several years ago from Germany, whose duty it was, as well as the duty of the *Moreno*, to take moving pictures. The torpedo boat *Jujuy* was designated to assist disabled airplanes.

The approach was made on a converging course until at the proper distance the *Rivadavia* opened fire with a 12-gun salvo. After a delay of about three minutes, the *Rivadavia* left the range on a northerly course. This was due to a casualty in operation. After the difficulty was discovered and remedied, she returned to the range and five more salvos were fired, during which time the firing vessel was making 19 knots, by revolutions.

The majority of the salvos were over except the third, which was a straddle. In general the salvos were excellent except the last, which was ragged: both guns in one turret and one gun in another turret failing to fire. These were fired after the salvo and straddled the target.

The casualty which caused the suspension of firing was due to the failure of an air compressor. Only one compressor in the forward part of the ship was in operation, and when the pressure dropped after the first salvo the automatic valve of the stand-by compressor

failed to function, so that the electric motor operating the stand-by compressor blew the circuit breaker on the main switchboard in the dynamo room, putting all the battle telephones out of operation. Three unsuccessful attempts were made to "throw in" the circuit breaker. When the telephone failure was noted in the control station the order to cease firing was sent to the guns. This explanation was made by one of the ship's officers, but it does not exactly fit the case, and a more logical reason would seem to be that the order to cease firing was given when the pressure on the gas-injector system dropped below the safety limit. Probably no interruption in the firing would have taken place had all the compressors been operating at the commencement of the practice.

The Minister of Marine upon his return to Buenos Aires from the firing of the *Rivadavia* gave an interview to the press representatives.

The minister stated that he was very well satisfied with the target practice of the *Rivadavia* in spite of the fact that there was an interruption after the first salvo.

The minister believes that this practice is one of the best exercises of long-range firing at a battle target that has ever taken place in South America, where never before has firing taken place at a distance of 19,700 yards. He stated that the interruption after the first salvo was not worth while giving it the importance credited to it by the newspapers' representatives in Mar del Plata and which was published in the newspapers in Buenos Aires. The actual casualty was repaired in five minutes and had the *Rivadavia* been firing at an enemy she could have resumed the combat almost immediately, as they were other means of repair at hand.

The minister said that the information given to the admiral and commander of the division stated, among other things, that the firing would take place at the distance of 16,400 yards and that everything had been prepared for that distance, but because of the experiment which the parliamentary commission, which was on board, desired to carry out, the distance was increased to 19,700 yards, making the exercises more difficult.

In spite of this, the first salvo was very good, and although a trifle over (800 over) it was in an exact line with the target, and would have been rectified in the next salvo had the interruption not interferred with the plans of those in charge of the firing, causing them to start again without being able to use the first salvo as a reference.

The President stated that he had received a good impression of the practice and at the end he sent a telegram of congratulation to the captain of the *Rivadavia* and to the Minister of Marine. It is the opinion of the minister that he will be able to give more exact

information when all the factors intervening in the firing are studied. At the time of the interview details were lacking regarding the opinions of the various department heads and officers of the ship and also the necessary information from the towing vessel, aviators, and the moving pictures.

OBSERVATIONS

It was noted that all the mirrors, glass in air ports, some bulletin boards, and the glass windows in the fire-control tops had strips of paper pasted on them in the form of a cross from one side to the other. The strips were about 1 inch wide. It was said that the use of these strips prevented the breaking of the glass during the target practice. At all events no broken glass was found after the practice. All the deadlights in the quarters and upper decks were protected by flat brass covers secured by screws to the frame of the deadlight casing.

The large air ports in the captain's cabin and the bulkheads on the quarter deck were protected by dish-shaped casings secured to the inner side of the bulkheads.

The crew of the *Rivadavia* is practically new, not more than 175 of the men who were with her in Boston being now on board. The remainder of the crew are conscripts who arrived on board during the month of June, 1926, and who at present, although not thoroughly trained, have been giving entire satisfaction to the captain of the ship.

Officers and men from the battleship *Moreno* umpired the *Rivadavia* and certain members of turret crews of the *Moreno* were on board as observers.

NOTE.—The *Rivadavia* is a battleship of 27,900 tons, mounting twelve 12-inch guns. She and her sister ship, the *Moreno*, were built in the United States in 1910-1914, and were again in the United States this last summer, where they were converted to oil burners and a new United States fire-control system installed.—ED.

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3. Remarks regarding navy purchase.

Nothing definite is known so far as to what companies the bids for the construction of the proposed new vessels for the Argentine Navy will be given. The naval mission in Europe is giving careful consideration to having some of the destroyers constructed in Spain. It will be remembered that during the trans-Atlantic flight conducted by the Spanish aviators the Spanish torpedo boat *Alcedo* was in the port of Buenos Aires and was very much admired by the officers of the Argentine Navy.

There was great disappointment among certain shipbuilding firms in the United States when the Argentine Government did not request them to submit bids for the construction of ships. It has even been stated that American bankers, who were the only ones capable of making a loan, might possibly refuse to loan the money to Argentina to purchase ships in other countries.

It seems that England charges 2 per cent on all bonds issued in the country and that France and certain other European countries are not in a position to loan money. However, it is doubtful if a threat of this kind would now be carried out, since American companies have recently been requested to submit bids.

The question of the bankers not loaning money to Argentina to purchase ships abroad did not depend on the fact that Argentina might not accept the bid of an American company, but they felt that they had been unjustly ignored in not being given an opportunity to bid.

The Minister of Marine has stated that American companies would certainly be permitted to bid. The Minister of Marine has directed the naval mission in Europe, which was evidently at the bottom of the complications, to order the head of the naval mission in New York to make the necessary arrangements.

NOTE.—The above is in connection with the recently announced naval building program of Argentina, which has created such a great stir in South America. Details and comments on this program were given in the November and Decemer BULLETINS. Briefly, it consists of three cruisers, six destroyers, six submarines, several auxiliary vessels, and the improvement of naval bases, all over a period of 10 years.—ED.

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4. Submarines for Argentine Navy.

The Electric Boat Co. has been in touch with the Argentine Government and convinced some of the higher Government officials that, owing to its experience in submarine construction, the number of successful boats in operation, and its reputation, it is in the most favorable position of any submarine-boat company to construct the submarines of the naval program.

During the recent controversy on the subject of Argentina having its ships built abroad instead of in the United States the Electric Boat Co. submitted a bid of $715,000 per boat of 920 tons displacement. This boat was compared with the boat submitted by the Italians, who, it is understood, offered to build submarines at £150,000 per boat or about $727,500.

The Electric Boat Co. proposed to build these boats, should the contract be awarded to them, at the plant of John Cockerrill (Ltd.)

in Seraing, Belgium. It is understood that this company has a plant also in Hoboken, N. J.

The Argentine Naval Mission in Europe did not recommend the acceptance of this bid, as the report submitted by Commander Pastor, Argentine Navy, stated that he did not believe the Belgian plant capable of doing the work and believed that they were unreliable in so far as the capacity of the company had never been demonstrated and that they had never built submarines; in fact, they had built but one ship. This information does not check with the statement of the company.

It has been stated that the head of the mission, Rear Admiral Galindez, of the Argentine Navy, would not wish to have any of the proposed vessels built outside of Italy. It has also been stated that the wife of this officer is a niece of Mr. Orlando, the head of the Italian shipbuilding company.

The Electric Boat Co. has appointed as its representative in Argentina a business man who at one time was an officer in the navy and whose former classmates are now rear admirals. This representative is of political importance and in addition is the manager of what are practically the largest cattle ranches in the country and which are the property of relatives of the President of Argentina. This representative has brought forward such convincing arguments that all the bids submitted by European and American shipbuilding companies will be reviewed here by a board composed of the highest ranking officers in the Argentine Navy. Originally it was stated that Rear Admiral Galindez, as head of the naval mission in Europe, would have the final say regarding the acceptance or rejection of any bids submitted.

This state of affairs was overruled by the highest authority in Argentina, that is, in so far as Rear Admiral Galindez's activities are concerned. The President has now directed that the navy obtain bids from the Electric Boat Co. regarding the cost of construction of their type submarine built in their yard in the United States, and since the Electric Boat Co. has turned out excellent boats it would be much better to have them build the boats than an European company without such experience. It has been stated further that it is quite possible that the six submarines will be built in the United States regardless of cost. When the board meets to review the bids, the younger Argentine officers who will be called upon to furnish information are officers who have had instruction in submarines, all of whom were students at the United States Naval Submarine School in New London, Conn.

During the next 10 years, it is said, Argentina will probably build 18 boats of a surface displacement of 920 tons. Undoubtedly one of the prime factors in the event of the submarine-boat construction

being awarded to a United States firm has been the wish of President Alvear to give the work to America, from whom it will be necessary to borrow the money.

It is understood that the English shipbuilding companies, particularly Thornycroft, were very much annoyed by the alleged determination of the Argentine Naval Mission in Europe to award all the construction to Italian firms. No information has been received regarding the award of bids for destroyers and cruisers.

(Since the above was written a serious development in the controversy regarding the awarding of the contract for the building of submarines for the navy has come to the surface.)

As stated above, the President of the Republic directed that a committee of naval officers of the rank of rear admirals be designated to examine these bids. It is understood that the Minister of Marine accordingly designated Vice Admiral Irízar, Rear Admiral Fleis, and Rear Admiral Daireaux, the latter the chief of staff of the Argentine Navy. However, the Minister of Marine directed the board to approve the action of Rear Admiral Galindez and accept the bids and recommendations which he forwarded. The chief of staff questioned this procedure and stated that he believed the board should look into and decide the whole question of the bids and that officers familiar with submarines should be called before the board to give their opinion. The Minister of Marine disagreed with this principle. The chief of staff therefore submitted his resignation as chief of staff of the navy, which the Minister of Marine did not accept. The chief of staff then not only submitted his written resignation and his reason for doing so, but his request to be relieved from active duty and placed on the retired list.

Meantime it was proposed to have the submarines built under the patents of the Electric Boat Co. in the shipyard of the Forgeron et Chantier de Méditerrané in Le Havre, France, at a price in the neighborhood of $800,000 United States. (The prices for building: In the United States, $1,400,000; in England, $1,150,000; in France, $800,000; in Italy, $727,000; in Belgium (United States patents), $715,000.)

The President had determined that the boats were to be built in France at Le Havre and so informed the Minister of Marine, but he did not inform him that they were to be built under United States patents or that the French company was under contract with the Electric Boat Co. Shortly after the Electric Boat Co. obtained the preliminary quotation from their French partner the French company cabled them canceling all contracts they may have had with the Electric Boat Co. This has created a great deal of uncertainty and suspicion, and it is believed that the French company was requested by Admiral Galindez, by direction of the Minister of Marine,

to submit bids immediately, which the French company evidently did, but on their own patents, with the prospect of greater profit to themselves. This sudden action on the part of the French company has made it necessary for the submarine company to obtain bids from another one of their agents, Penhoet, in Brest, France.

Had it not been for the action of the junior member of the special commission in Europe with Admiral Galindez, Commander Pastor, the submarines would have been built in Belgium by Cockerrill, but as he recommended against it officially the President then determined to accept the proposal of the French company at $800,000. He stated that he was thoroughly familiar with this French company and that no unfavorable reports from a naval officer would change his opinion. As stated in the previous paragraph, the cancellation of the agreement of the French company with the Electric Boat Co. has changed the situation, and nothing is known as to just what action will be taken if a bid is submitted from the company in Brest.

It is presumed that the entire matter will be settled when the President informs the Minister of Marine that he wishes the boats built in France under American patents. The Minister of Marine will not then be in a position to avoid placing the contracts, as he is on record as favoring the Electric Boat Co. construction, which, he stated, he believes to be the best in the world.

The President wishes to have the contracts placed in France with a company which will build submarines with American patents, as in that way he will not only favor France but also America. He says that France will be the greatest buyer of Argentine wheat this year and that he anticipates America will loan the money for the armaments.

B. AERONAUTICAL

1. Proposed Spain-Argentina dirigible communication.

A dispatch from Spain published in the Buenos Aires press states that the council of state of Spain has authorized the Columbus Transaerial Co. of Spain to establish aerial communications between Sevilla and Buenos Aires.

The company is required to build an air port in Sevilla and commence flights within three years. The contract requires that a monthly schedule be maintained and that within a reasonable time it be increased to a weekly schedule. The concession requires the company to give passage to two passengers and one-half ton of freight when desired by the Government. The capacity of the dirigibles, which are to be of German construction, will be 40 passengers and 10 tons of cargo.

In case of war the Spanish Government may operate these airships.

NOTE.—The *L–127*, now building at Friedrichshafen, is intended for such trans-Atlantic service as this. A description of this ship was given in the December BULLETIN.—ED.

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2. *Airplane flight to the South Pole.*

The airplane in which it is proposed to make the South Pole flight from Argentina is a Dornier-Wall monoplane, equipped with two Rolls-Royce motors of 360 horsepower each, arranged one behind the other. Two of these planes, which were assembled in Montevideo and carry factory numbers 1012 and 861, are more or less the same size as the *Plus Ultra*, which made the trans-Atlantic flight, but with a larger fuselage. Each plane has a capacity for 14 passengers and a crew of 4, composed of a first and second pilot, machinist, and radio operator.

The planes were the property of the German Aerial Transportation Co. of Colombia and are now the property of the Condor Syndicate. They have been tested in the air for more than 200 hours and are expected to be used at once for the purpose of taking Dr. Hans Luther, ex-German Chancellor, to Rio de Janeiro from Montevideo.

The sponsors of the flight will be the Argentine Aeronautical Institute and the National Society of Engineers. The head of the expedition will be Mr. Antonio Pauly, and it is probable that first pilot will be Maj. Pedro Zanni.

As far as is known the personnel connected with the flight will be the following, all of whom are or will be of Argentine nationality:

One chief scientific observer, Mr Antonio Pauly.
One first pilot, Maj. Pedro Zanni.
One radiotelegraphist.
One photographer (Victor L. Frías).
One natural scientist.
One meteorologist.
One geographist (physical and astronomical).

It has been stated that Mr. Victor L. Frías will have charge of topography, photography, cinematography, and history, except for the scientific part.

The principal base to be selected will probably be on Exception Island, which is a coaling station belonging to the Norwegian Government. The base will be supplied with the necessary equipment which will be transported by the Argentine naval transport, *1° de Mayo*, Commander Felix McCarthy commanding.

The expedition will erect a wooden house at the base, which it is proposed to equip with special stoves designed to burn seal fat. It is proposed to supply the base with skiis and sleds, a collapsible boat

(Klepper type) similar to the one Amundsen carried: special clothing for winter and inclement weather, theodolites, transit compass, altometers, meteorological instruments, barometers, hydrometers (ordinary and registering), instruments for determining the force and direction of the wind at high and low altitudes, and small observation balloons. A spectroscope will be installed at the base to study the aurora of the polar regions and also an astrophotographic spyglass to observe the sun during the polar eclipse. The cinematograph which was used in the ascension of Mount Everest and constructed especially for work at low temperatures will be left at the base and will be supplied with 10,000 feet of film. One free copy of all moving pictures taken will be given to the Argentine Government for study and exhibition in the schools. Copies of the views in natural colors will be taken by a special machine provided with three shutters.

The airplane selected for the flight will be equipped with a small cabin, with windows installed, as plotting or drafting and observation room and protection against the climate. As it is proposed to establish advance bases with gasoline, oil, etc., preparatory to the flight to the pole, it is proposed to use the cabin as a stateroom if necessary.

It is stated that the plane will carry the following special instruments:

One special sextant for use without an artificial horizon, invented by Antonio Pauly and approved by Professor Koppe, of Berlin.

One desviometro, an instrument which will permit the simultaneous determination of the speed, true course, true direction of the wind and the altitude of the plane above a fixed point on land. It will replace Amundsen's sun compass and "echo sounder" which, Pauly states, did not give satisfaction because of the zones of interference which the irregularities of the course and noise of the motors caused. Pauly also states that the sun compass employed by the Norwegian explorer had not given satifaction.

Two photograph meters which will permit the photographing of the land and water passed over and at the same time register on the photographs the inclination of the instrument at the time of taking. Mr. Pauly stated that this machine would be employed for the construction of all South Polar maps on the scale of 1 to 1,000,000.

The plane will also carry all physical and meteorological maps and necessary astronomical and nautical tables.

It will be equipped with a radio telephone and telegraph installation. The telegraph system will have a radius of 750 miles and the telephone system 180 miles.

C. MISCELLANEOUS

1. Contract with Colt's Fire Arms Co.

It is reliably reported that the Colt's Fire Arms Co. has now come to a final agreement with the Argentine Government with regard to a munitions contract.

The arrangement provides for the furnishing of 926 machine guns, a large quantity of spare parts, and 10,000 automatic pistols, the entire lot amounting to the sum of $2,200,000.

In connection with the supplying of the machine guns, the Colt's Co. has also arranged to allow the Argentine Government to manufacture similar equipment, subject to the payment of a royalty on the production thereof to the American company.

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2. Summary of present status.

The following is a summary of the present status of Argentina, taken from an M. I. D. combat estimate of that country:

Argentina has no disputes of sufficient moment to draw her into a foreign war. Argentina and Brazil are not in accord and regard each other with distrust and jealousy, as both aspire to be leaders in South American affairs. Both desire to extend their influence in Paraguay and Uruguay, but neither seems inclined to press this matter to the point of a serious quarrel. The relations of Chile and Argentina are very much the same and for the same reasons.

Inasmuch as only the men of the permanent army receive any instruction, and of these there are annually about 20,000 passing to the reserve, it must be seen that the system does not give a highly trained army as a whole. The permanent army is well instructed, but the personnel deteriorates after passing to the reserve.

Material is deficient, old, and antiquated, which detracts much from the efficiency of national defense, considering present-day standards.

In the event of war Argentina must keep her ports open and her communications with foreign countries assured in order to obtain munitions and military supplies generally. Unless she can obtain essential raw materials, coal, iron, etc., her own manufacture of military supplies fails as soon as her reserve supplies are exhausted, and she would be in desperate straits to continue a war. Moreover, as a great part of her arms, armament, and munitions are of German (Krupp) manufacture, there remains no source of supply for replenishing them; that is, if Germany is complying with the terms of the Versailles treaty both directly and indirectly. It is only because her neighbors in South America, her most probable adversaries, are very little, if any, better off in the above respects that

Argentina could engage in a major war with any reasonable prospect of success. With a country possessing a modern navy her case would be hopeless from the start.

The training of the navy is excellent, as far as facilities will allow. The efficiency of the ships suffers from conscription with its constant withdrawal of men, and the obligation of a large percentage of the officers' time in repeating elementary training.

BRAZIL

A. NAVAL

Fleet activities.

The Brazilian fleet, under Commander in Chief Rear Admiral Souza e Silva, left Rio de Janeiro Harbor recently for Ilha Grande to continue the exercises organized by the Brazilian Navy staff which was interrupted by the death of the Minister of Marine, Admiral Alexandrino de Alencar. The vessels participating in these exercises consisted of:

Battleships:
- Minas Geraes (B. B., 21,200 tons).
- São Paulo (B. B., 21,200 tons).
- Floriano (coast defense ship, 3,160 tons).

Cruiser: Barroso (O. C. L., 3,450 tons).

Torpedo destroyers:
- Amazonas (O. D. D., 560 tons).
- Piauhy (O. D. D., 560 tons).
- Rio Grande do Norte (O. D. D., 560 tons).
- Sergipe (O. D. D., 560 tons).
- Parana (O. D. D., 560 tons).
- Parahyba (O. D. D., 560 tons).
- Maranhão (O. D. D., 934 tons).
- Tugs, tenders, etc.

Aviation mail service was established.

The fleet returned to its Rio de Janeiro anchorage in order to participate in the inauguration of Brazil's new President. Exercises were said to have been satisfactory to the new commander in chief.

During the above cruise of six days various maneuvers were held, and shortly after the return of the fleet to Rio de Janeiro Harbor the commander in chief, Rear Admiral Souza e Silva, was promoted to vice admiral.

NOTE.—The above force constitutes the majority of the Brazilian naval strength.—ED.

B. AERONAUTICAL

Naval aviation.

Officers:

17 naval aviators on active duty at Ilha Governador.
1 naval aviator on active duty at Florianopolis.
1 naval aviator teacher at Navy War College.
1 naval aviator student at Navy War College.
1 naval aviator on leave in Europe for one year.
3 naval aviators serving in other departments of navy.
3 army officers taking aviator's course at Navy School.

Enlisted and civilian personnel:

250 enlisted men at Ilha Governador.
200 civilian workmen at Ilha Governador.

Planes:

6 F–5–L's, 3 active (with metal propellers).
1 Avro, active.
2 JN–4's, active.
1 Oriole, active.
2 MF's, active.
14 SVA's, active.
9 Snipes, active.

In reserve and under overhaul (will take at least four months to put in shape):

6 F–5–L's.
3 JN–4's.
1 Avro.
1 MF.

On December 2, 1926, the chief of the United States Naval Mission to Brazil held an operating inspection at Ilha Governador. Eleven planes were in the air. The chief of mission was pleased with the progress and efficiency obtained in the past year.

C. MISCELLANEOUS

1. Visit of Mr. Luther, ex-Chancellor of Germany.

On November 27, 1926, Mr. Hans Luther, ex-Chancellor of Germany, arrived at Rio de Janeiro in an airplane from Rio Grande do Sul, via Santos, after having visited the countries of the west coast of South America and crossing the Andes in an airplane from Santiago to Buenos Aires.

The ex-Chancellor in his interviews published stated that his trip was one of study of the Latin American continent, its peoples, and characteristics.

Through connections with German-speaking people in Brazil it was arranged at every stop-over of the ex-Chancellor that festivities would be in order, and the Junker airplane representatives in South America supplied the machines or airplanes in which Mr. Luther traveled.

While at R'o de Janeiro for four days his welcome was carried out with banquets and receptions by the highest authorities, and on the night of December 1 the Minister of Foreign Affairs offered a banquet to him. At this banquet the Minister of Foreign Affairs eulogized the German race, spoke of the evident merit of men who work in the saving of their country, and claimed that such men were not only honored by their particular race but that all humanity gave them homage; that they could not be considered citizens of their country alone, but were considered as citizens of humanity in general.

He ended his discourse with thanks to Mr. Luther, for his visit, from the Brazilian people, and especially that element of German-Brazilians that go to make up the greater part of southern Brazil.

Mr. Luther replied to the Minister of Foreign Affairs by expressing his sincere thanks for the eloquent hospitality given him on Brazilian territory, spoke of his gratification on seeing in his voyage in southern Brazil so many Germans working and living as German-Brazilians should; his great satisfaction at finding no restrictions of the Brazilian constitution deterred them from the customs of their mother country, and expressed a belief that the German element in Brazil was a source of richness and prosperity to the Brazilian nation. He claimed he would do all in his power to help reciprocal relations between Germany and Brazil continue as they have in the past.

Many prominent people of the Brazilian Government attended this banquet, including representatives of influential German business. Among those present were the Minister of Marine, Minister of War, Minister of Finance, Minister of Transportation, Minister of Agriculture, various senators and deputies, as well as a personal representative of the President of the Republic. Needless to say, much press comment was given Mr. Luther's spectacular travel, and, due to influence of high authorities, Mr. Luther's entire stay in Brazil was at the expense of the Brazilian Government.

NOTE.—Mr. Luther was Chancellor of the German Government preceding that of Marx. Much publicity in the German press was given to the above visit.—ED.

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2. Summary of present status.

The following is a summary of the present status of Brazil, taken from an M. I. D. combat estimate of that country:

Brazil has no disputes of sufficient moment to draw her into a foreign war. However, civil war is always a probability to be contended with.

Brazil's geographic isolation from other countries, her natural protective barriers, and the distances from centralized areas of other bordering South American countries minimizes the necessity for a large standing army.

Excepting food, virtually all war requirements must be imported.

In spite of the administration's manifest interest in effecting much needed improvements in national defense measures, it is scarcely possible that any notable results can be accomplished in the near future on account of the financial situation.

Much of the heavy armament of the army is old and of doubtful value. The same may be said of that of the navy, the two battleships being the only units capable of offensive combat. The army's plan of organization is excellent, a modern application of the lessons of the World War. This organization is largely a plan, and it remains to be seen to what degree it will be realized.

Brazil is hardly on equal terms, as to naval strength and efficiency, with either Argentina or Chile, and in a war with either country she would have to neutralize or destroy its navy in order to maintain her communications with outside sources of supply, or she would be practically helpless as soon as her stock on hand became exhausted. In a war with any foreign country possessing a modern navy she would be helpless from the start.

CHILE

A. NAVAL

1. Repairs to flagship "Latorre."

The following article from El Mercurio, of Santiago, may be considered as more or less reliable:

During the coming year the fleet will be noticeably reduced in tonnage of active service; there will remain in active service nothing more than three cruisers and three destroyers, except the cruiser *Zenteno*, which will go on special duty to one of the ports in the north.

The battleship *Latorre*, owing to the years of continued active service, requires some alterations and repairs inherent to this class of ship, and which are better and more safely done in Europe than elsewhere.

Therefore our first battleship must go to Talcahuano and perhaps also to Europe, according to the rapidity with which the necessary alterations and repairs can be made.

It is said that if the necessary repairs can be completed at Talcahuano within a year the ship would go to that port, but in case they can not be

accomplished within that time, she will be sent to European docks, in which, said repairs can be made more rapidly. This is in order that the battleship can be incorporated in the general maneuvers of the fleet at the end of the year.

The decision as to where to send the ship for repairs will be left to the heads of the navy and the Government.

In view of the repairs necessary to the *Latorre*, the *O'Higgins* will take its place as the flagship of the fleet until the former is ready for active service again.

NOTE.—The *Almirante Latorre* is the ex-British *Canada*, and is the only major ship in the Chilean Navy. She is of 28,000 tons and mounts ten 14-inch guns. Talcahuano is the larger of the two Chilean naval bases.—ED.

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2. *Naval expansion program.*

The following quotation from O Journal, of Rio de Janeiro, was quoted in the Mercurio, of Santiago recently, and is interesting to note as an expression of Brazilian thought with regard to reduction of armaments and the general distrust throughout South America of any nation seeking to increase or improve its navy.

The O Journal says that the news that the Chilean Government has asked Congress for funds to purchase six destroyers inspires certain uncomfortable reflections upon the spending of a sum of money so great for the purpose of acquiring material of war by a country whose finances are in such a precarious condition, which demonstrates that the continent is far from the peace about which the orators of the Pan American congresses talk so much.

The failure of Thesis VII of the Pan American Congress of Santiago and the deliberate inactivity of the governments of this part of America in relation to the problem of the reduction of armaments has had for a result these great purchases, not only on the part of Chile but also on the part of Argentina and Peru.

The paper mentioned laments the failure of the recent proposition of Mr. Kellogg, and says the situation which has been created on the west coast if not alarming for the international tranquillity of South America, at least is ruinous for the finances of Chile and Peru.

Speaking of the finances of Chile, all Santiago papers of the 30th of December announced that the auction of Government-owned nitrate lands had been a complete failure. It has been the custom to use the proceeds of these sales to meet deficits, and they are counted on in making plans for the future.

This year it was expected to obtain about 70,000,000 pesos by the auction, and doubtless a large part of that expected sum has already been obligated; however, the auction realized only a little over 300,000 pesos. So far, newspaper comment has been very light, but there is little doubt but that it is a stunning blow to the country.

It is not believed that the article quoted above from Rio de Janeiro with regard to the proposed purchase of destroyers by Chile has any foundation in fact.

NOTE.—In the November BULLETIN an extract from the Chilean press was quoted to the effect that the Government had proposed and the senate recommended an extensive increase in naval armament, including 18 destroyers, 2 cruisers, and 2 transports. This report has been determined to be unfounded, and it is likely that no contracts have been let by Chile or even contemplated, with the possible exception of 2 new submarines to balance the 2 Peru has recently constructed in the United States.

The great decline in the value of the Chilean nitrate lands around Antofagasta has been due to the discovery and use of air fixation of nitrogen, which has destroyed the former natural monopoly of nitrates which Chile held.

Thesis XII of the Pan American Congress, held at Santiago in 1923, was one of the 19 topics of the congress, and called for "consideration of the reduction and limitation of military and naval expenditures on some just and practicable basis."—ED.

CHINA

A. MISCELLANEOUS

Internal situation and its relation to international affairs.

[Source: M. I. D.]

At the present time American and British statesmen are vying with each other in their frequency and warmth of expression of sympathy for the Chinese in their struggle for "freedom." The Canton nationalists and their Russian directors are the recipients of all this sympathy. Wholly aside from the natural aspirations of a very limited group of intelligent Chinese people, a particular Chinese political faction or party is the beneficiary of all western well-wishing. One can not but wonder what the northern Chinese militarists and politicians think of the foreign statesmen who shower sympathy and compliments on a rival Chinese group which has caused those western statesmen their greatest concern. Yet, after all, the Chinese well understand the principle of bestowing soft words on those most dangerous to you. These same western spokesmen refer always to the present situation as a purely Chinese internal affair. Here in China, too, foreigners discuss the situation often at length, and generally approach it in the light of a Chinese internal fight, or at most a struggle between the Chinese and their "imperialistic" enemies, meaning Great Britain, Japan, and America.

The nationalist movement was a very natural Chinese conception. For want of a better means of expressing it, the present movement sprung from political preachments of Sun Yat Sen. Nationalism is not new. For some years it has struggled against the inertia of China's unthinking millions and would still be struggling were it not for the insinuation of Soviet Russia into the affair. Russia has given the so-called nationalism an impetus and direction which it otherwise

would not have had. Japan has always been a "meddler and muddler" in Chinese politics. The Washington conference caused Japan to modify her tactics and pursue a policy more in keeping with the western powers. Russia's entry into the arena forced Japan to separate herself from concerted action with the western powers and reenter Chinese affairs with her old energy, but employing different methods. Japan had to look after her interests even though England and America became passive.

Without going into the reasons justifying the statement, it may be said that what once was a feeble Chinese nationalist movement, a movement which tugs at the heartstrings of western liberals, is to-day the skirmishing of covering detachments of Soviet Russia and Japan on Chinese soil. Chinese nationalism is a reality, but it is at its infancy and not powerful. So far as we are concerned, Chinese nationalism should be observed with interest, but only incidentally. Our vital interest is what we shall do or not do in this matter of the Japanese-Russian conflict, the covering detachments of whose forces are figuratively now in contact along the Yangtze. It is useless to repeat the growth of the influence and present position of Soviet Russia in Chinese affairs: that is well known. As to the immediate nationalist military outburst, the Russian part is understood, but little has been said of what Japan is doing.

In China to-day what country is most immediately and vitally affected by the success of the nationalist (Canton) movement? Certainly not America. Great Britain's trade suffers, and this makes her political situation at home more difficult, much to the satisfaction of Soviet Russia, but Great Britain can stand more violence and still exist. To Japan, China is vital. Japan can never be passive, as we are, to developments in China. It may be prosaic to say that Japan prospers from a weak China, but it is no less true. Speaking of China south of the wall (the status of Manchuria is no more in doubt), the policy of Japan has for years been unchanged except as to details of application. Japan wants a divided China or a China whose government is only so strong that it must lean on Japan for support. Nationalism or no nationalism, disorders or no disorders, Japan's policy changes little. She, of all nations, has the least to fear from disorders in China. She manifests little concern for the life of her nationals. Her methods are such that as Great Britain loses trade she gains it. She daily picks up business which England loses. Customs returns prove this. Japan, now appreciative of the cancellation of the Anglo-Japanese treaty instead of resenting it, is free to act independently and she benefits with each new embarrassment to England. In each case of recent industrial disorders the first violence was directed at Japanese firms and later was neatly

shifted onto British firms and British officials. Japan knows the Chinese, and she is no longer restrained in her methods of dealing with them by any treaty with Great Britain.

As mentioned previously, the press of England and America contain frequent expressions of opinion of prominent men concerning the Chinese situation. The general tone of them is favorable to Canton. Japanese statesmen utter no statements except the most innocuous declarations of sympathy for all parties and assurances of neutrality in the internal affairs of China. Even the strikes directed against Japanese and the killing of Japanese subjects evoke no strong protests from the legation or press. Japan is playing her game alone.

What does Japan want of China? She wants gradually to absorb the white man's trade, principally Great Britain's. This she is doing, and China's chaos assists rather than hinders the undertaking. To quote the ideas of Sir Francis Aglin, inspector general of customs, there are three conditions which are the foundation of Japan's present China policy, namely, (*a*) no outside interference in the pursuance of her exploitation of Manchuria and Inner Mongolia; (*b*) no interruption in the steady exportation of iron ore from the Yangtze Valley; and (*c*) forestalling the creation of a strong central government under Russia's domination. There is considerable doubt as to the Japanese foreign office's desire in the matter of a strong government versus a divided control in China. There is no doubt as to Japan's aversion to a Chinese Government under Russia's influence.

It would hardly be possible to conceive of Japan being hopeful of keeping effective the above fundamental conditions of her policy if the nationalist government attained complete control of China north to the wall. Russian influence over the Canton government might be eliminated if Japan and the western powers made this elimination a common objective. Japan might maintain the flow of iron ore from the Yangtze Valley, but if the nationalists held to their present avowed aims the iron-ore monopoly would not be so easily continued. It can not be doubted that if the nationalists' organization held to its aims and were successful in securing control over all of China south of the wall it would soon force Japan into an embarrassing position in Manchuria. Assurances might be obtained from the Canton government that they would keep hands off Manchuria, but such promises would never be kept once they felt real power. In brief, Japan's aims are best served if the nationalist government does not obtain control of all China.

On the other hand, Russia certainly dreams of a revolutionary government controlling China, a government which Soviet Russia has installed and which she still directs. Here, aside from any

other conflict of national aims, we have Japan and Russia at odds with each other. The present situation, which so generally is viewed as a Chinese internal affair as a nationalistic aspiration to produce a new China in spite of the obstacles placed in its way by western powers, is in fact a conflict between Japan and Russia. To recognize it as such is vital to western nations.

If it is true that Japan can hold no brief for nationalist success, and if it is true that she is in a position, by the shifting of material aid and by oriental diplomacy, to influence the outcome of the nationalist movement, it is reasonable to expect that a stalemate will result from the struggle between north and south. It would seem logical to look forward to a situation where the Cantonese hold the area south of the Yangtze; the Ankuochun, conducting the government of Peking, holding Northern China, with a continuation for some time of much the same disorderly forces that we have witnessed in the past five years. Meanwhile the conflict of interests between Russia and Japan will become more acute unless unforeseen international adjustments are effected.

NOTE.—The above was prepared in December, 1926. See article under "Japan" in this number entitled "Japanese economic penetration of China." The history of Japanese and Russian conflict in China is as old as is the presence of those two nations in the east. The Canton-Japanese struggle is merely the present-day aspect of this conflict which has hithertofore had its field of activity in Manchuria.—ED.

ESTONIA

A. NAVAL

The Estonian Navy.

A naval commission was recently sent to France presumably to discuss the delivery of small warcraft, especially submarines. The recent visit of French warships to Estonia also seems to have played an important part in this, emphasis having then been laid on the obsolete equipment of the Estonian Navy and the necessity of undertaking new constructions at an early date in order not to lose position as leader of the border states in naval power. The present navy consists of the following:

One gunboat (formerly Russian, constructed in 1907, 1,100 tons, 12 knots, two 4.7-inch guns, 50 to 60 mines).

Two destroyers (formerly Russian, constructed in 1915–16, 1,830 and 1,600 tons, 30 and 32 knots, five and four 4-inch guns and each one antiaircraft gun and three 18-inch triple tubes).

One torpedo boat (formerly German, constructed in 1916, 250 tons, 25 knots, two 3.4-inch guns, one 18-inch torpedo tube).
Three mine sweepers (formerly Russian, 50 tons, 9 knots, one small gun).
One transport ship (5,100 tons).
Three ice breakers.
Several small armed auxiliary vessels on Lake Peipus.

FRANCE

A. NAVAL

Spanish and Italian views of French naval activity.

France and Italy are more or less engaged in competition in the building of light craft in the Mediterranean and are political opposites. Spain exercises a balancing power between them and hence her political leanings do much to determine the predominance of one or the other. She also is actively engaged in light warcraft building. Great Britain is neutral all around and is only interested in keeping open the route to Suez. The following articles, one Spanish and one Italian, give interesting views of how France is regarded by these two countries.—Ed.

[(*a*) From the Spanish daily, El Sol (Madrid)]

In the general reduction of French estimates the navy has constituted an exception. The naval estimates, approved in a few hours, make provision for an increase of 400,000,000 francs over the preceding one, notwithstanding the suppression of several arsenals. The amount appropriated for military aviation has also been increased by several millions. At the present moment France has 34 ships under construction which will be brought into use during next year, and 60 other units are projected. The naval program appears to be directed at nothing more than the protection of the coasts and colonial convoys. The late war has provided great lessons on blockade, maritime revictualing by the colonies, transport of colonial troops, etc. On account of this, the French plan applies especially to the construction of cruisers, torpedo boats, torpedo-boat destroyers, and submarines, principally employed for these purposes.

But the French project of naval construction can hide no other meaning. If our readers take into account the state of Franco-Italian relations and the ambitions of Italy in the Mediterranean,

principally in regard to Tunis, they will understand that France has not been able to put out of sight these perspectives when planning her new ships. Italy finds herself well situated for obstructing, to say the least, French communications with her North African possessions. Until the launching of the new French ships, the Italian squadron will be superior to the French, but with the entrance on the scene of the 3 cruisers, 6 torpedo-boat destroyers, 12 torpedo boats, and 12 submarines of France, the relation will be inverted. Italy has also begun to launch a few ships, which she will commission within a short time, but they are fewer and of smaller tonnage than the French. The 3 cruisers of the *Dugay-Trouin* type and the 6 torpedo-boat destroyers of the *Chacal* type give to France the superiority in light forces which defend the Marseille-Algiers line. France's small predominance over Italy is assured for the moment and tends to prolong itself with the new additions of the naval estimate, allotted almost totally to the formation of a powerful squadron in the Mediterranean.

These data, apparently of small interest for us (Spain), are really of great importance, not because the knowledge of them commits us to naval competition, but because we, as curious spectators, see the beginning of future happenings in which these figures will have a most important bearing, and on which will depend, in the end, certain international attitudes.

[(*b*) From the Italian daily, Giornale D'Italia (Rome)]

Public attention has been focused on the new French naval program which contains plans for the intensive development of the sea power of our neighbor.

It is obvious that any disturbance of the natural equilibrium of those Mediterranean forces which are necessary for the prestige and security of the nations whose coasts are bathed by this inland sea can not pass unobserved by us. It will not be out of place, therefore, to examine the real portent of the new French measures in relation to our naval policy.

It is a fact that the French Chamber, in a rather unusual manner, passed the new naval appropriation of about 2,000,000,000 francs in a few minutes and almost without discussion. The figures are impressive, especially if we consider the far from flourishing condition of France's finances and her enormous expenditures for the maintenance of her army. At this point we find ourselves wondering what the reasons are for this expenditure, and, considering the political, military, and geographic positions of the various powers, it will not seem surprising if the Italians react more readily to the size of the French appropriation than any of the other Mediterranean nations. The total is truly imposing; but in order to weigh the relative effects

that it may have, it is necessary to understand the uses to which these sums will be put. It is evident that in connection with the balance of power in the Mediterranean it would be an altogether different matter if the sums were applied to the fortifications along the Atlantic or to the building of a harbor in Madagascar instead of being used to strengthen Mediterranean bases or to construct ships.

In 1924 France approved an important naval program covering the next six years which provided for an extensive development in her mobile forces. This program was discussed and studied by the Italian and foreign press with the result that the conclusion was drawn that France was aiming at the domination of other Mediterranean fleets, notably the Italian, Spanish, and Greek. England naturally was excluded. During the development of this program, however, various factors appeared to modify the plans decided upon. Above all, the cost of each unit was cut down, perhaps purposely, through strict economy, and during the last stage in the construction of these units it was ascertained that funds were lacking to complete them. Consequently a demand was made for an increase in the appropriation, which was rendered even more necessary through the fall of the franc.

Further, as a result of the exchange situation and of the high cost of living an increase in the pay of the navy personnel was considered necessary, this having been granted, furthermore, to the personnel of other navies.

The discontent among the officers and men because of the small pay and the insufficient allowance for rations and clothing was well known, and it was therefore necessary to ask for another increase in the appropriation in order to satisfy the just demands of the personnel.

Two portions of the increase are destined therefore to complete the plans already made and to meet the requirements of personnel. If the new appropriation asked and approved had been limited to the carrying out of these two purposes, there would have been no reason to study the relative efficiencies of the navies, because in that case these would not have been altered. But on the contrary, the fact is that a part of the appropriation, and not the least important, will be used to increase the building program with the result that the equilibrium is notably disturbed. Herein lies our interest in the matter.

It can not be stated that this is mixing into the internal affairs of our neighbors, because there can be no denying that we have the right and duty to study influences concerning us which can cause a positive or negative variation of our potential efficiency in the Mediterranean.

If we look at the size of the naval forces of the world, we see that the nations which have navies of considerable strength to-day are England, the United States, Japan, France, and Italy. These navies represent, or at least endeavor to represent, a general political program based on prevailing conditions.

Without going too far into the question of the naval policies of various countries we can be assured that neither France nor Italy can ever think of making war against nations with whom they are not coterminous. Hence we may argue that the policy of each of these countries is being developed with an eye on that of the neighbor. This is only natural.

Each nation has special tasks to assign to its navy, for which appropriate means of realization are necessary. In considering such means the forces which might hinder the accomplishment of these tasks must be taken into consideration. For example, in our case we must be certain of supplies of foodstuffs and raw materials, while France must be able to transport her soldiers from Africa to metropolitan France. Here are two operations which could be interfered with by the belligerents in case of war.

But in our case no matter who the adversary may be the necessity remains impelling, while for France the transportation of troops is not necessary unless she be involved on land with an adjacent State. Thus her African divisions would be useless to her in case of war with England.

The nations coterminous with France are Spain, Germany, Italy, and, of course, Belgium and Switzerland. Neither the army nor the navy of the first is sufficiently important to warrant an increase in the maritime and land forces of France. Germany's position is exceptional. According to the treaty of Versailles she can not build ships larger than 10,000 tons, and these only in limited numbers, but not being bound by the Washington Conference she can arm them with guns of larger caliber than those permitted our light cruisers. For financial reasons neither France nor Italy is able to take advantage of the greater liberty of action afforded them in the construction of dreadnoughts. Therefore in practice the German fleet, although governed by the treaty provisions, can become as powerful as the naval forces of France or of Italy. Germany is not allowed to have submarines, but it is common knowledge that she can construct these easily and rapidly by means of her well-appointed industrial system. This initial deficiency therefore can be promptly overcome. While the German Navy constitutes a potential means of defense for the Reich, it is not in a position to oppose the operations of the French fleet in the Mediterranean. Furthermore, the status of the German Army to-day is not likely to make the transportation of French troops from Africa a necessity.

As a result of this impartial examination it is evident that the importance of the military and naval forces of those countries (Spain and Germany) bordering on France does not warrant an increase in the French naval forces.

Italy alone has an army and navy capable of extensive operations, and it is therefore clear that those increases in the French naval budget are aimed at the attainment and maintenance of a marked supremacy over the Italian forces. This has been affirmed, moreover, in the French Chamber of Deputies. It is wise to be prepared for every eventuality, even the furthest and most unlikely, and we must envisage among these hypotheses a struggle accompanied by bloodshed with France. But it is also necessary for a great nation to maintain and develop its prestige. Consequently we should ascertain to what extent our security and our position are being impaired by the increase in the French naval forces. The type of vessels that are going to make up the increase has an important bearing on the subject, since it is clear that a flotilla of submarines would be more effective against the operations of our fleet than a dreadnought would be.

The French naval program to be completed in 1930 calls for the following new ships:

		Tons
4 cruisers	each	10,000
3 cruisers	do	8,000
3 cruisers	do	3,000
12 ———	do	2,400
24 destroyers	do	1,500
34 submarines.		

The mission of all these ships is to discover and to destroy convoys, to skirt enemy coasts, etc., all operations which are greatly to be feared by us.

In comparison with the above program over the same period of time the Italians will have built:

		Tons
2 cruisers	each	10,000
3 ——— (already in service)	do	2,400
12 ———	do	3,000
16 destroyers	do	1,300
15 submarines.		

In addition to this it is understood that four light cruisers of 5,000 tons are being planned.

Thus the French tonnage amounts to a total of 137,800, while that of Italy aggregates 92,000, a difference in tonnage which appears more glaring when the number of submarines is compared.

Our inferiority as revealed by the French figures themselves is serious, and if an examination of the immediate consequences does

not give rise to preoccupations it nevertheless does not mean that we should shut our eyes to the situation.

B. AERONAUTICAL

1. French naval aviation.

The following article is from the French press of recent date:

The rôle of naval aviation has been too often defined to further insist on its importance. It is as yet too premature to pretend to replace ships by aircraft.

The results obtained from bomb dropping, even though encouraging, are still far from fulfilling our hopes. But the scope open to naval aviation is very vast. Coast defense and reconnaissance work at long distance can no longer be carried on without aviation. The debut of naval aviation was very slow. It appears, however, that after several years of groping around and lack of proper guidance a vigorous effort now under way may bear fruit. Shortage of funds never did exist for naval aviation.

Army aviation, however imperfect it may be, has nevertheless obtained positive results; it actually exists. Naval aviation was through long years in search of something better, a technical ideal, but was continually tossed about between opposing doctrines and changing heads of departments. On the other hand, the direction of army aviation remained for long years confided to the same distinguished chief. The changing of personnel in lower ranks also played havoc with naval aviation. This situation practically confronts all new organizations. Naval aviation, more recently created, is a field for the young. How can we at the same time assure these young officers the necessary practical sea training to retain their profession? The aviation corps is too often considered outside of the regular navy, practically ignored by it, and suffers the injustice of no easy promotion to the higher grades.

The entry to active service of the carrier *Bearn*, the advent of seaplanes on board the latest type ships, as well as the creation of aviation centers on the coast, will guarantee to young aviators liaison with the seagoing forces, thus giving them a chance to remain, which they should be above all, seagoing naval officers.

Obstacles which for some time prevented the normal development of naval aviation are disappearing slowly. Cooperation between the Undersecretary of State for Aeronautics—the organization charged with the purchase of planes—and the naval service has not always been of an efficient character. The navy often complained of not being consulted relative to types of planes best suited for naval purposes, with the result that it was forced to accept machines that could not be utilized in service. An accord has been arrived at, and in the future the navy will have liaison with the aeronautical technical services.

At last the light seems to have penetrated even to the corridors of Rue Royale (Ministere de la Marine). An evolution in material is announced. Up to the present the chiefs of naval aviation had a grievance which only seems reasonable. Naval planes are destined to fly over water and eventually land thereon and still keep afloat. To fulfill this special rôle, army planes of the most rapid and powerful type would not suit. To date the aeronautical technical services have not permitted the construction of seaplanes of sufficiently light weight to fly to a height to compete with pursuit planes.

It appears also only natural and practical that the seaplane, which has the incomparable faculty of keeping afloat for hours in case of accident and which can be easily towed even in bad weather, should constitute the largest part of

naval aviation. These precious qualities have been recently affirmed in the flight of four seaplanes around the Mediterranean and the flight of two seaplanes from Dakar to Madagascar.

As to dirigibles, we do not feel that they will in the near future take their place in naval aviation. Two indispensable items are missing, helium and money. We must only follow with patience the efforts made by the United States to replace the *Shenandoah*.

NOTE.—Although France possesses an extensive air force, yet there has been, in the last year, continued criticism on the part of the French press and publicists of the administration and equipment of this force. This has occasioned a revival in French aeronautics, which, with the existing revival of the navy should augue well for naval aviation.—ED.

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2. *Destruction and sale of dirigible "Mediterranean."*

The dirigible *Mediterranean*, broken up at the aviation center Guers-Pierrefeu, was sold at public auction for junk.

This dirigible, as well as the *Dixmude*, were delivered to the French by the Germans at the conclusion of the armistice.

This leaves the French Navy without any dirigibles, with the exception of a few small scout and vedette (nonrigids) type.

The present policy of the Ministere de la Marine is not to construct any more dirigibles.

NOTE.—The *Mediterranean* is the ex-German *Nordstern*.—ED.

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3. *An emergency flotation gear for aircraft-carrier planes.*

The following notes are made regarding French practice in the use of emergency flotation gear:

The French consider such apparatus as purely makeshift, unessential, and of limited application. They do not use such gear on any of their service planes, but they do so design their carrier planes that they are able to float for several hours by means of water-tight hull and wings. They do not consider the release of landing gear absolutely necessary, but they do believe that it is to be recommended. The French have made tests on the advisability of installing planing boards forward of the axle and tail skid vanes, but they do not favor the use of these in practice. They have not been satisfied with the use of inflatable bags or any other such devices, as they consider the water-tight fuselage to be preferable. They consider it necessary to float the plane with a slight positive trim—that is, with the nose end slightly above the water—and they weigh the fuselage to obtain this result. They have made experiments with water-tight wings, but do not believe that this arrangement is sufficient in itself. Life belts are furnished the personnel, but the French consider that the float-

ability of the plane is indispensable and essential. The French do not have a high opinion of amphibian planes, as they recommend them only for small machines used for general service and not for large specialized machines.

NOTE.—See the Italian practice regarding emergency flotation gear, given in the November BULLETIN.—ED.

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4. Trans-African flight; France to Madagascar.

Recently two French naval seaplanes completed a flight to the French colony of Madagascar from the aviation base, Etang de Bene.

No attempt was to be made to establish a record. The flight was projected solely to demonstrate the feasibility of opening up a route by seaplanes, through utilizing the rivers and small lakes which abound in central Africa as landing places, in regions where it would be difficult for a landplane to find suitable landing spots. The intervening stretch of the Indian Ocean between the island of Madagascar and the mainland had also to be traversed.

The chief characteristics of the seaplanes are as follows:

The *LeO–194* (Loire and Olivier): A biplane of the flying-boat type, piloted by Lieutenant Bernard, with two small pontoons mounted under each wing; propelled by a Jupiter air-cooled 420-horsepower motor, with a tractive propeller, mounted in front of and below the upper wing. The hull is constructed entirely of wood, and in the ordinary type of this plane contains a cabin with accommodations for six passengers. The pilot's seat and that of the radio operator are situated aft of the cabin. Total weight of plane empty, 3,740 pounds; useful weight (load), 2,244 pounds. For this long-distance flight special fuel tanks were installed with a capacity of 422 gallons of gasoline. The above special amount of fuel was calculated to give the plane a flight radius of 1,212 miles. Speed (loaded for ordinary service), 105 miles per hour.

Seaplane *C. A. M. S. 37:* Three-seater biplane flying boat, piloted by Lieutenant Gilbaud: built for service aboard aircraft carriers or for coastal reconnaissance work; can be constructed as an amphibian, if desired; equipped with a Lorraine-Dietrich 450-horsepower motor, water cooled, with a "pusher" propeller, mounted aft and just below the upper wing. The central hull (in type used for ordinary service) has accommodations for a crew of three men—at the front the observer, then the pilot just in front of the wings, and behind these the machine gunner. Specially enlarged fuel tanks were installed for this long-distance flight. The wings are of equal span and fold toward the rear. The fuel tanks have sufficient capacity for six hours of flying at cruising speed. Weight in flying

trim, 6,380 pounds; weight empty, 4,400 pounds; wing, loading, 110 pounds. Special fuel tanks, 442 gallons capacity, installed for the long-distance flight, thus furnishing a flight radius of about 1,212 miles.

Leaving e'Etang de Berre on October 12, the first leg of the flight carried the seaplanes along the coast of Spain across the Straits of Gibraltar to Tangier, having traversed a distance of 870 miles; the next day, October 13, followed the coast of French West Africa, the planes arriving at Casablanca, a distance of 205 miles.

From Casablanca the seaplanes on October 15 flew to Las Palmas, a distance of 683 miles. Leaving the Canary Islands on October 17, the planes flew again to the mainland, arriving at Port Etienne, French West Africa, on the same day, 560 miles, and at St. Louis the following day, 342 miles.

Up to this point, with the exception of their jump to the Canary Islands, the planes had been following the route of the Latecoere Air Transport Lines, which run down the West African coast as far as Dakar. At St. Louis, however, the seaplanes left the coast and struck off into the interior of the African Continent, a territory for the most part hitherto unexplored by airplanes.

By following successively the courses of the Senegal, Niger, Benoune, and Chari Rivers, then to a considerable distance that of the Congo, so as to reach Lakes Tanganika and Nyasa and other smaller bodies of water, Lieutenant Bernard arrived at Quilimane on November 19 last with his Loire & Olivier plane. The Indian Ocean was thus reached and only 248 miles of sea separated him from Madagascar. A short "hop" to Mozambique and then to Majunga on the following day and Lieutenant Bernard had reached the end of his trip, having flown a total of 9,322 miles.

The other seaplane, the *C. A. M. S. 37*, piloted by Lieutenant Guilbaud, was delayed at Lokodja about the middle of the flight by a "gripping" of the motor cylinders due to a lack of lubrication.

The 450-horsepower Lorraine-Dietrich motor of the *C. A. M. S. 37* was equipped with an acetylene-gas starter, which used a mixture of this gas and of gasoline to put the motor in operation. The lubrication of this motor is effected by a system which uses a minimum of lubricating oil.

As no acetylene gas was available in Africa, Lieutenant Guilbaud, the pilot, attempted to start his motor by using simply gasoline without its mixture with acetylene. This, however, was not efficaceous enough, and after several attempts had been made the walls of the cylinders became sprayed with gasoline, which caused the pistons to "grip," as there was not enough lubrication.

After a short rest at Majunga Lieutenant Bernard started back on his homeward trip to France on December 5. He struck northward through the African Continent, flying over Lakes Nyasa and Victoria and descending the valley of the Nile by way of Cairo and then following the Mediterranean Sea to France, touching at various points in Syria, Greece, and Tunis on the way.

GERMANY

A. NAVAL

1. Progress reports on vessels under construction.

Name	Date of completion		Presumable date of completion
	Jan. 7, 1926	Jan. 10, 1926	
	Per cent	*Per cent*	
Torpedo boat Moewe	90	100	Jan. 10, 1926.
Torpedo boat Greif	35	50	Spring, 1927.
Torpedo boat Seeadler	35	50	Do.
Torpedo boat Falke	25	40	Autumn, 1927.
Torpedo boat Albatros	25	40	Do.
Torpedo boat Kondor	25	40	Do.
Cruiser B	10	18	Spring, 1928.
Cruiser C	3	10	Autumn, 1928.
Cruiser D	----------	5	Spring, 1929.

Cruiser *D* is under construction at the naval dockyard, Wilhelmshaven.

NOTE.—The torpedo boats are of 800 tons, mount three 4.1-inch guns and four 19.7-inch torpedo tubes, and will have a speed of 33 knots. These are the first boats laid down by Germany since the war: four of them are launched. Cruiser *A* is the *Emden*, at present afloat and in commission. No details of *B*, *C*, and *D* are available yet, except that they are reported as being of a different type from the *Emden*, of greater speed, but still mounting high-velocity 6-inch guns, with a displacement of close to 7,000 tons.—ED.

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2. Accident on destroyer "Moewe."

A very serious accident occurred on board the new torpedo-boat destroyer *Moewe*, which was launched last spring, during a trial trip recently. The machinery was under test and during the trip the flange of the exhaust pipe of the forward condenser burst, the steam killing 2 men, seriously injuring 4, and slightly injuring several more, 3 of whom have subsequently died from their injuries, making a total of 5 killed.

The destroyer was under the command of Lieut. Ernst Fischer and was cruising in the Baltic Sea for the purpose of testing the

boilers and engine plant. During these trial trips, which are to last several months, not only are the boilers and engine plant but the guns are tested, and the crew of 130 men made thoroughly familiar with the destroyer, which is the first vessel of a new type.

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3. Sabotage in the "Schleswig-Holstein."

According to a communiqué issued by the German Admiralty, a gunner's mate by the name of Koehler on board the battleship *Schleswig-Holstein* surreptitiously obtained two bottles of rum which he and a companion made away with. He then requested permission to attend a ball given by the noncommissioned officers, which was refused owing to his very intoxicated condition. In a fit of temper he tore the seals off the ammunition magazine of the ship and endeavored to ignite the magazine by setting fire to two protective mats, thinking in this way that he could destroy the ship. The fire was discovered immediately and was extinguished without trouble. The man jumped overboard in his fear of the explosion but was picked up and taken to a naval hospital, where he was put under observation as to his mental condition.

NOTE.—The *Schleswig-Holstein* is one of the eight old pre-war battleships which Germany was permitted to retain by the terms of the Treaty of Versailles. She is of 13,200 tons and was built in 1906.—ED.

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4. World cruise of the cruiser "Emden."

The light cruiser *Emden* left Wilhelmshaven November 14, 1926, for a world cruise to last 17 months. Thousands of people were present to wish the vessel Godspeed on her cruise to Africa, Asia, India, Japan, America, and the Azores. Vice Admiral Bauer, commander of the North Sea Naval Station, in speaking to the men, referred to the fact that the vessel was leaving on the anniversary of the capture of Kiauschau (November 14, 1897), which was to be taken as an omen that Germany would again own colonies, of which she was greatly in need.

NOTE.—The *Emden* will touch at the following United States ports, according to the present schedule which is, however, subject to change:

Dutch Harbor, June 16–22, 1927.
Sitka, June 26–July 7, 1927.
Skagway, July 9–19, 1927.
Seattle, July 21–August 5, 1927.
Panama, September 1–6, 1927.
Philadelphia, February 12–21, 1928.

The *Emden* is the largest naval vessel built in Germany since the war. She was commissioned about a year ago, is of 6,600 tons displacement, mounts eight 5.9-inch guns, four 23.6-inch torpedo tubes, and has a designed speed of 29 knots.—ED.

5. Fire control, German Navy.

I recently visited the Siemens-Halske Works, Berlin-Siemenstadt, and had a conversation regarding the German fire-control system with Director Doctor Rellstab, the general manager of this plant. He informed me that the Siemens-Halske concern had manufactured all the fire-control installations used aboard German naval vessels and that in view of the experiences gained with this system during the war, he considered that they were in the best position to develop the most efficient fire-control system. He said that the system at present used in the German Navy was the same as they had during the war with the addition of certain improvements as the result of their experiences during the war. They are not manufacturing any fire-control apparatus in Germany and they were, therefore, not able to show me anything in that line. The director said that the N. V. Hazemeyer's Signaal Apparate Fabriek, Hengelo, Holland, were now manufacturing the Siemens-Halske fire-control system under license and that they would very gladly show everything they had to any naval expert that we would care send there. The people to see there are Director Hazemeyer and Doctor Croll.

Director Rellstab said that his firm would very gladly sell to the United States Navy their entire system but that he considered they should be paid for all their experience and that therefore the price of such an installation would be rather high.

In the German Navy there are three types of directors in use, viz: (1) For train (follow-the-pointer type) or target-bearing director; (2) a type of director (elevation) which accomplishes the same purpose as the British firing director, although somewhat differently constructed, and (3) a combination of the above instruments.

The target-bearing director has a follow-the-pointer system operated on alternating current with a repeating dial on the target-bearing transmitter at the secondary fire control station. If, for example, the forward station is controlling the fire, the after director follows the pointer in train by means of the following pointer on the repeating dial so that both periscopes are then trained on the same target. Should the fire be divided then each target-bearing periscope controls its own group independently. A switch in central station throws the control to either the forward or after station or is thrown to divide the fire with each station controlling its own group. The parallax between target-bearing periscope and the guns is automatically corrected by the cams of the transmitting gears in the fixed base of the periscope. Since this will vary with the range, one of the knobs on the periscope is fitted to keep the range set on one dial of the instrument so that the parallax correction may be automatically

and correctly applied. Another knob on the instrument is for the purpose of setting the deflection as determined by the spotter so that the target bearing sent to the guns by the instrument is corrected for the deflection. A third knob is fitted to the periscope for the purpose of varying the optical power and the field. The optical system was constructed by the firm of Carl Zeiss in Jena. In the type of periscope most commonly used for the target-bearing device there was fitted an additional single eyepiece for the gunnery officer who was then able to check the target and make observations without disturbing the operator on the target-bearing director.

On the battleship type of target-bearing director there were also fitted a series of repeat-back dials which indicated whether the turrets were following the pointer. In addition to this were fitted a set of ready lights, one for each turret so that the turret officer was informed when guns were "ready."

In the director for elevation the director correction was set directly on the instrument. The only moving part in the optical system was the pivoted mirror system which was operated by a crank on the side of the instrument by the operator. In this case the battery was fired on the down roll at the moment the horizontal wire was about to touch the horizon. With this system of "indirect fire" (according to the German term) the battery was fired by a mouth contact piece by the director operator. The latter system, or the elevation periscope for the control of fire was finally developed after Jutland.

In the smaller vessels a type of combined elevation and azimuth periscope was employed owing to the lack of space in the fire-control tower. For torpedo boats the azimuth instrument only was employed, on account of the weight of the combined elevation and azimuth instrument.

Spotter's corrections were transmitted to the "control station" through the gunnery officer, who either allowed the "spot" to be applied or else altered same, as he deemed proper. The system thus was highly centralized—too much so, in the opinion of a great many of the German gunnery officers. The experience at Jutland appeared to indicate that the gunnery officer had more than enough to do without compelling him to supervise the spots and the rate of change of range.

In the older pre-Jutland system the range with spotter's correction was transmitted directly to the guns, the spots being applied in the "control station." Under these conditions the range was set on the sights at the guns, the drums being corrected on the range scale for erosion.

A brief description of the German fire-control system as installed in 1918 is as follows. It may be different now.

The control station is fitted with the following apparatus:

For battleships.—(1) Target-bearing periscope; (2) main-battery director; (3) gunnery officer's periscope; (4) range averaging device (for automatic averaging of the range-finder readings); (5) range-transmitting device; (6) time-of-flight gongs; (7) salvo gongs; (8) telephones, connecting spotter, central station, and after station; (9) range-keeping devices, installed after Jutland.

The entire fire control was centralized in the control station, the lower central station beneath the protective deck was employed only as a switching station, which was double banked with voice tubes.

The ranges obtained by range finder were transmitted electrically to the control station, where same were averaged by the automatic averaging device. With the older method this average range was transmitted directly to the battery, together with spotter's corrections applied in the control station.

NOTE.—Absence of plotting room and of other control stations besides the fire-control tower are notable features of this system. Only the switching was done below decks. See comments of the gunnery officer of *Lutzow* on the operation of the system, as given in "The *Lutzow* at Jutland," in the November BULLETIN.—ED.

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6. Japanese use of German fire-control system.

On a recent visit to the Siemens-Halske Works at Siemensstadt-Berlin, in conversation with Director Doctor Rellstab, the managing director of the works, he informed me that the Japanese had been negotiating with his firm concerning the purchase of the Siemens fire-control system but the dealings with them had not been at all satisfactory from his point of view as they had purchased only parts of the system, and he expressed himself as being very much opposed to conducting any further negotiations along those lines. He said that, of course, the fire-control system is for sale to any government that cares to pay the price, which is rather high. My conclusion of this talk with him is that the Japanese have not yet adopted or purchased the German fire-control system.

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7. Naval artillery divisions.

[Source: German press]

Naval artillery divisions have been formed from the former coast-defense divisions. This rearrangement brings out more prominently the principal tasks of the divisions—protection of the coast line with coast artillery, antiaircraft defense, and blockade. This change is in keeping with the reorganization of the divisions into artillery, antiaircraft, and blockade companies. Their former infantry tasks (especially the basic military training of the recruits) remain un-

altered. The new name is an inheritance of the old naval artillery divisions which did such admirable work during the war in Tsingtau and in Flanders, as well as at the Dardanelles and on the western front.

The naval artillery divisions have been given the following designations:

BALTIC SEA

I. N. A. D. (formerly Coast Defense Division III)	Kiel.
III. N. A. D. (formerly Coast Defense Division I)	Swinemuende.
V. N. A. D. (formerly Coast Defense Division V)	Pillau.

NORTH SEA

II. N. A. D. (formerly Coast Defense Division II)	Wilhelmshaven
IV. N. A. D. (formerly Coast Defense Division IV)	Cuxhaven.
VI. N. A. D. (formerly Coast Defense Division VI)	Emden.

B. AERONAUTICAL

Activities of Berlin air port.

Luftweg publishes the following data regarding the activities of the Berlin air port during the month of October, 1926:

Started 592 planes.

Landed 581 planes.

Transported:

Passengers, 2,863.

Luggage, 26,250 pounds.

Freight, 27,550 pounds.

Mail, 4,030 pounds.

Newspapers, 46,150 pounds.

During the month of October 16,811 persons visited the air port.

GREAT BRITAIN

A. NAVAL

1. H. M. S. "Nelson."

Attached photographs show *Nelson* as of December 1, 1926. Previous photographs were given in the December BULLETIN. Constructional progress will be noted as follows:

(*a*) All nine of the 16-inch guns now installed.

(*b*) Further work on the large conning and fire-control towers.

(*c*) Stepping of main topmast for antennæ.

(*d*) Two of the eight antiaircraft guns mounted on the quarterdeck.—ED.

2. *New guns.*

[Source: English press]

In the near future two guns of new pattern will pass into service in the British Navy. These are the 16-inch weapons with which the *Nelson* and *Rodney* are being armed, and the 8-inch weapons of the 10,000-ton cruisers. The range of the 16-inch guns will doubtless exceed that of the 15-inch gun which, at extreme range and with a trajectory of 5 miles, is credited with being able to reach a target at 49,000 yards. But the chief purpose of increasing the size of heavy naval armament is to enhance the smashing power of the projectile. The value of added range beyond a certain distance is very small. At Jutland our four *Warspites* outclassed all the German battleships, but they had practically no opportunity of exercising their superior powers at a distance which left the enemy unable to reply. We believe that 22,000 yards was the extreme range to which any heavy gun was sighted, and the most effective long-distance shooting was done at between 12,000 and 15,000 yards.

Naturally the character of the mountings for these new guns is kept strictly confidential. But is it permissible to anticipate that in view of the experience of the Great War they will be designed to deliver high-angle fire. In this event the increased power of the projectile becomes of much more moment than in the case of direct fire. The difference in the damage done by a 15-inch shell and a 16-inch shell on direct impact with armor belting would probably not amount to very much, but the difference in the respective explosions on the upper works of a ship might be very great. It is interesting to note that the gunnery experts apparently consider that the limit of size has just about been reached in heavy naval artillery. During the war an 18-inch gun was built and tested. It was originally believed that the *Nelson* and *Rodney* would mount weapons of this caliber; but a strong body of professional opinion resisted the suggestion, and we believe the general view is that the 15-inch gun is heavy enough. The concession of the extra inch is probably by way of a compromise between the two schools.

Regarding the new 8-inch gun nothing whatever authentic is as yet known. It may be recalled that the 7.5-inch gun was the highest-velocity weapon in the navy, the 200-pound shell which it threw leaving the muzzle at 3,100 feet-seconds. High velocity is of considerably more relative importance in light armament than in heavy artillery. Early in the war we found that the 4-inch German gun considerably outranged our 4.7-inch gun and was a very good match for all but the latest marks of the 6-inch gun. In the duel

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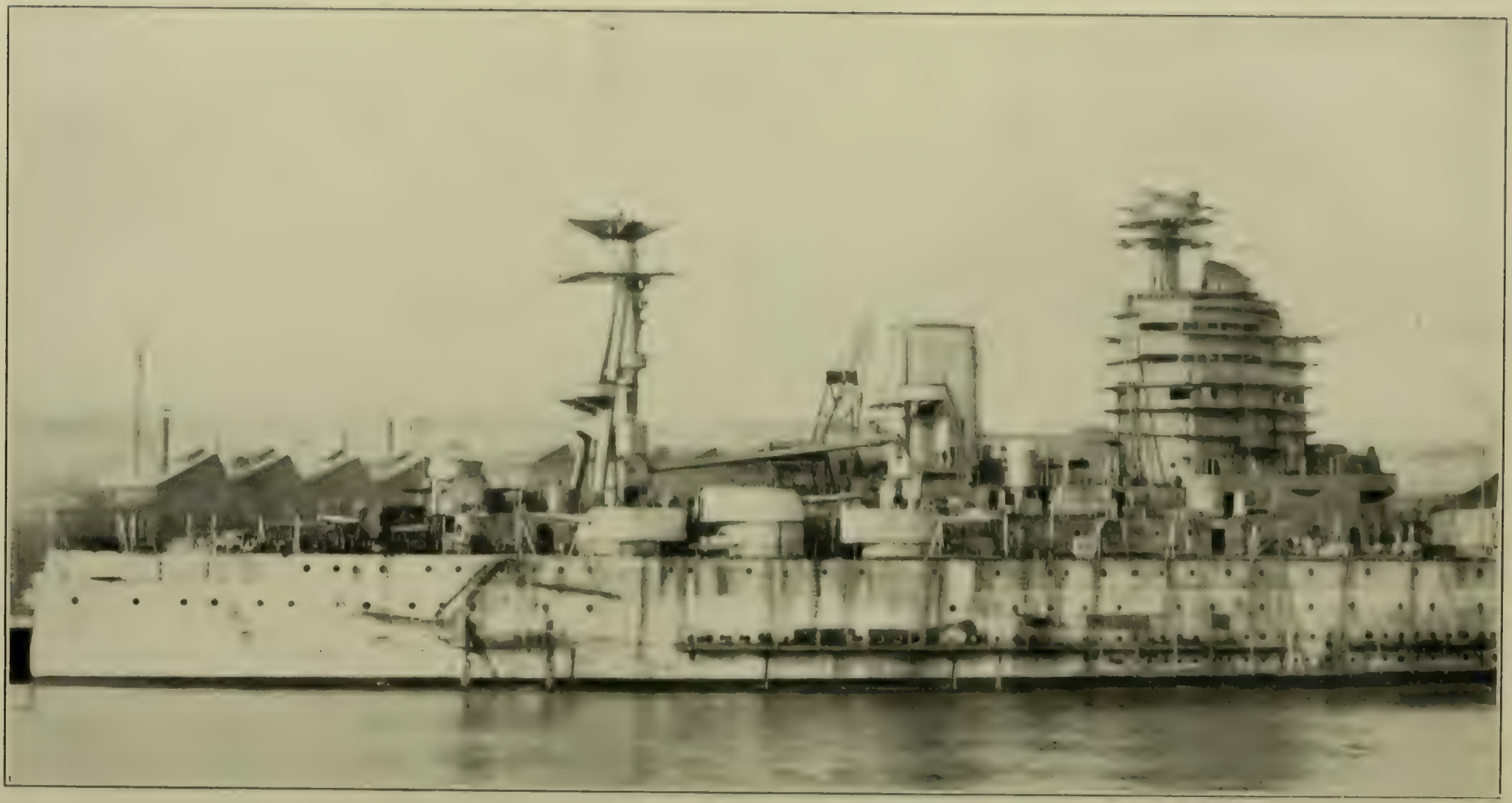

H. M. S. NELSON

between the *Highflyer* and the *Kaiser Wilhelm der Grosse* the British cruiser was never able to fire her 6-inch battery without coming within reach of the armed liner's 4-inch pieces.

Since 8 inches is fixed by the Washington agreement as the maximum caliber for cruiser armament, there can be no international competition in cruiser gun weight so long as the Washington agreement remains in force. All effort therefore will be directed to getting the highest destructive value out of this limitation. Besides ourselves, the United States, Japan, France, and Italy are building 8-inch gun cruisers. Germany is confining herself to the 6-inch gun for her four new *Emdens*. She has always believed in small calibers and very high velocities. It is worth recalling that the gun which bombarded Paris from a range of over 100 miles was only 8 inches in bore, but about 120 calibers long. It very soon became ineffective, owing to drooping of the muzzle. The lesson of the war as to the value of very high velocities for cruiser guns has unquestionably been well taken to heart, and it is safe to predict that the new British weapon will prove fully equal to any foreign effort in this direction. Had the guns of the poor little *Pegasus* only proved as good as they should and might have been, she would not have been helplessly pounded to pieces by the *Konigsberg*.

NOTE.—It is not unlikely that the 16-inch guns of the *Nelson* class have a tremendous range, far exceeding out *Colorado* class, as mounted, for it is fairly certain that they are of 50 calibers and their elevation, as mounted on the *Nelson*, is close to 40°.—ED.

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3. *The "Warspite's" funnels.*

Much interest has been aroused by the singular appearance of the battleship *Warspite* after her extensive reconstruction at Portsmouth. This vessel, which has lately become the flagship of Admiral Sir Roger Keys, commander in chief in the Mediterranean, belongs to the *Queen Elizabeth* class, the five vessels of which have hitherto been remarkable for their symmetrical appearance. Each originally had two large funnels, the foremost being just abaft the bridge. It was found, however, that with a following wind the smoke from the forward funnel seriously incommoded the people on the bridge, and what was still more serious blinded and half suffocated the officers and men in the foretop, where the control gear for the big guns is situated.

Similar troubles have been experienced in other navies, but it was left to Japan to find the solution. Two years ago her post-Jutland battleships *Nagato* and *Mutsu* were reconstructed, the forward funnel of each being trunked into the second funnel, so that the smoke and fumes from the boilers are discharged at a point far in the rear of the bridge and gunnery control position. Thus joined, the two fun-

nels resemble a chemist's gigantic retort, and from the esthetic point of view the result is deplorable.

Nevertheless, there is a marked gain in fighting efficiency, and we have done Japan the compliment of reconstructing the *Warspite* on similar lines. All the other four ships of the *Queen Elizabeth* class are to have their funnels altered in the same way, besides being fitted with antitorpedo bulges and other improvements. The silhouette of the *Warspite* in her present guise baffles description, and must be seen to be believed. But it is quite conventional in comparison with that of the latest Japanese cruisers, in which funnels and masts are set at angle suggestive of the last word in futurist architecture.

NOTE.—Excellent photographs of the *Warspite*, as reconstructed, are given in 1926 Jane's Fighting Ships. It will be remembered that the *Warspite* was very heavily hit at Jutland.—ED.

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4. Aircraft-carrier design.

It is understood that the cruisers *Courageous* and *Glorious*, which are being rebuilt as aircraft carriers, will on completion resemble the *Furious* in the arrangement of flight decks and internal fittings, but that instead of the horizontal smoke ducts with which the latter is fitted they will have an upright funnel on the extreme starboard side, as in the *Hermes*. Experience with the *Hermes* and the *Eagle* is said to have shown that the smoke and hot gases from the funnels of these ships do not seriously incommode the pilots of machines landing on the deck, while the vertical uptakes are more conducive to steaming efficiency than the lateral ducts by which the products of combustion are discharged overside in the *Furious* and the *Argus*. It is noticeable that all the latest foreign aircraft carriers have vertical funnels. In the American ships *Lexington* and *Saratoga* the boiler uptakes are led into a single huge casing which is over 100 feet in length and 20 feet in width, but as this huge chimney is well over on the starboard side the greater part of the deck is left free for landing operations. In the Japanese carrier *Hosho* the three small funnels at the side are hinged to lie horizontally outward from the hull when flying is in progress, while in the French *Bearn* the single funnel is mounted in a sponson. The Japanese Admiralty is said to be considering the plans of a 28-knot aircraft carrier to be propelled by Diesel engines, the advantages of which for this class of vessel are obvious. For the moment, however, H. M. S. *Hermes* holds the field as the most successful carrier of moderate dimensions which has been evolved.

NOTE.—The *Courageous* and the *Glorious* were practically sister ships of the *Furious*, now in service as an aircraft carrier. They were all originally laid

down during the war as light battle cruisers and were dubbed the "Outrageous" class. They displace about 23,000 tons at full load and are good for about 31 knots. They will be completed in 1928.—Ed.

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5. *Naval design.*

[Source: English press]

TWIN-GUN CRUISERS

After the boldness shown in Sir Eustace d'Eyncourt's Nelson design in adopting triple turrets for the first time in British seagoing ships, it is noteworthy that the new cruisers of the *Kent* class, for first of which Sir W. J. Berry is responsible, are to mount their eight 8-inch guns in twin turrets. According to the information at the disposal of Fighting Ships, they will be outclassed in this respect by the American cruisers *Pensacola* and *Salt Lake City*, laid down last spring, which are to have ten 8-inch guns in two twin and two triple turrets. The British vessels have the same armament as the French *Duquesne* and the Italian *Trento* types, but the Japanese ships of the *Nachi* class are credited with nine 8-inch guns, the disposition of which is not disclosed. Antiaircraft armament is equally varied. As compared with the four 4-inch guns put down for the British cruisers, the American are to have six 5-inch, the French eight 2.9-inch, the Italian twelve 4-inch, and the Japanese an uncertain number of 4.7-inch weapons.

Too much reliance must not at this stage be placed upon all the figures respecting these ships under construction, since they are not official, and the various admiralties, while approving the information for publication, accept no responsibility for its accuracy. It is important to bear this in mind in comparing the new ships from the machinery standpoint, for the British vessels will be of 90,000 horsepower, the American 100,000 horsepower, the French 130,000 horsepower, and the Italian no less than 150,000 horsepower—the last named a more powerful drive than has ever before been installed in any warship, even the giant battle cruiser *Hood*, of a displacement four times as great. Only the American ships are stated to have been designed for high steam pressure.

NEW TORPEDO CRAFT

An interesting minor competition is that between France and Italy in the matter of flotilla leaders. Italy completed last year three of the *Leone* class, of 2,165 tons and 35 knots, and France has replied with six of the *Jaguar* type, of 2,359 tons and 35½ knots. A further step forward is taken in the three of the *Bison* class, two of which have just been laid down at Lorient. Of 2,650 tons and

36 knots, armed with five 5.5-inch and two 2.9-inch guns, with six torpedo tubes, these vessels will, it is claimed, be the largest and most heavily armed flotilla leaders afloat.

In regard to destroyers, nothing of which details are yet available comes up to the two British vessels authorized in 1924 and now being completed, of which the *Amazon* was designed by Messrs. Thornycroft and the *Ambuscade* by Messrs. Yarrow. The *Amazon* is slightly heavier (1,330 tons, as against 1,210), but the armament of four 4.7-inch guns, seven 2-pounders, and machine guns, with six torpedo tubes, is identical. The machinery is Brown-Curtis turbines, of all-geared type, and while the horsepower is not stated the designed speed is 37 knots, or 1 knot more than that of any other destroyer. All-steel bridges, higher freeboard, and improved cabin accommodation are among the principal features of these new vessels, which will probably become the standard types for the destroyer replacement program to be begun next year.

Information respecting submarines is scanty, but it is noteworthy that Japan now has a group of eight submarines of large size, with a radius understood to be sufficient to take them across the Pacific and back without refueling. The cruising radius of the American boats of the largest type is said to be 12,000 miles, and they are reported to be capable of crossing the Atlantic and returning without refueling or otherwise requiring attention. The British submarine *X1* has been credited with similar qualities; she can remain submerged for two and a half days.

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7. Discussion of Canadian naval contribution.

Considerable discussion has been aroused over the statements made by Premier Bruce of Australia and Premier Coates of New Zealand concerning the responsibility of the Dominions for contributing to imperial defense. At a luncheon before the Canadian Club in British Columbia, just before Mr. Bruce sailed for Australia, he is reported to have considerably amplified his previous statement and to have reiterated that any Dominion which failed to furnish its proportionate share of the expense of naval defense must be regarded as occupying an inferior position to the other Dominions. There has been no Government comment relative to those statements.

In 1909 a resolution was passed unanimously by Parliament calling for the immediate construction of a Canadian naval service. The late Sir Wilfrid Laurier sought to implement this resolution by the naval service act of 1910, which was presented to Parliament in January of that year. The bill proved contentious and was only passed after prolonged debate at the end of April. Some progress was made toward the inauguration of naval service during the Laurier administration, but the year 1911 was largely occupied in the discussion of

reciprocity, and the naval question remained somewhat in abeyance, although it was an important issue in the Province of Quebec in that year's general election, the Nationalists of that Province being opposed to the measure. In December, 1912, Sir Robert Borden (then Mr. Borden) introduced a resolution which provided for a contribution to the British Navy of three modern dreadnought battleships to cost $35,000,000. The opposition insisted that any ships built must remain the property of Canada. After long debate, Sir Robert Borden's measure was carried through the House of Commons by the application of closure. In the Senate, the majority of which was Liberal, the measure was amended to make it inoperative until it has been "submitted to the judgment of the country." Nothing further was done at that time with reference to naval contribution. The naval service of Canada has not been actively developed. Certain rumors have been current the past week regarding the intentions of the Government to undertake a five-year naval building program. Up to the present time, however, the rumor lacks confirmation.

NOTE.—According to Mr. Ormsby Gore in the House of Commons, the naval estimates of Great Britian and the Dominions for the year 1924–25 were equivalent to an expenditure per head of population as follows:

Country	Expenditure per head £	s.	d.
United Kingdom	1	4	10
Australia		8	0
New Zealand		8	0
South Africa		1	9
Canada		0	8

This question of equality of the burden of defense is becoming a popular one in England which feels that the Colonies should take an equal share with the mother country. It is evidenced in Parliament and in the press and in such recent English books as "Australia—White or Yellow?" by Fleetwood Chiddell (Wm. Heinemann, Ltd.). The late imperial conference did not include this subject within its "Resolutions on Defense" but it hinted at it very broadly.—ED.

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8. *Imperial naval expenditures.*

[Source: Japanese press]

The attempt to divide the cost of the Singapore naval base among the Dominions of the British Empire has created general astonishment. * * * This project has been given ample thought, and for this reason the fact, that even to-day the plans are too vague to bring a discussion of the expenditures to be borne by the individual Dominions, is surprising.

The reasons which bring about the effort to place a portion of the costs on the Dominions are sufficiently clear. The total expenditures of the British Empire for military and naval purposes is about yen 620,000,000, of which about yen 550,000,000 is paid by Great Britain

and the balance by the Dominions. These figures represent a per capita expenditure of yen 120 in Britain and yen 40 in the Dominions. The desire of the Baldwin Ministry to bring about a more equable distribution of expenditures is the reason for the attempt to place a part of the Singapore expenses on the Dominions.

It is a logical reason. The important question is, however, why does the British Government, which intended at one time to assume the entire cost of the project, wish suddenly to put off a part of the burden on the Dominions? In view of the benefits which they will derive from the Singapore base, New Zealand and Australia are willing to pay their share, but Canada and South Africa are not. The problem is to find some reason why it is necessary to overcome the opposition so that the Dominions can be made to assume their portion of the expenses. There are two ways in which this can be answered. There is something irrational in the theory that the plan was put through without sufficient funds to meet the costs; and it is difficult to believe that the Baldwin Ministry, which so enthusiastically supports the project as to revive it after it had once been discarded, could have begun work on the base without having the necessary funds in hand. The second answer is that the plans have been or are to be greatly enlarged. This is not, we believe, far from the truth. It seems likely that the increase in costs accompanying the enlargement of the plan is to be placed on the Dominions.

The British naval clique, even Earl Balfour, believe that the base as originally planned would be inadequate and have vigorously supported a movement for its enlargement. There is every indication, therefore, that the Baldwin Ministry has given in to the pressure of British public opinion and of Australia.

It is also possible that Baldwin is endeavoring to win the approval of the Liberal element in Britain, represented by such persons as Macdonald and Earl Grey. The British people who are now struggling with the burden of the late war are not easily to be convinced of the necessity of the Singapore base. Therefore, if the Baldwin Ministry can persuade the Dominions to pay the costs, it will be able to effect its defense plans without increasing the financial burden of the British people.

NOTE.—See article under "Japan" in this number, entitled "Singapore naval base."—ED.

GREECE

A. NAVAL

1. British Naval Mission.

A new English naval mission will arrive at Athens shortly and the Greek Government has requested that the commission be com-

posed of a senior officer who will be assistant to the naval chief of staff and will be attached to the navy; an officer for the naval school, with three additional officers for the special naval schools of artillery, of torpedo service and signal service; an officer for the submarine school; three more for aviation, one of the officers for aviation to be an aviation mechanic who will be used to establish and administer a school for aviation mechanics. A captain of the navy is desired as head of the mission but it is probable that a rear admiral will be sent. The entire mission will be designated by the British Admiralty and no officers have been asked for by name.

NOTE.—The former government, headed by General Pangalos, terminated the life of the former British naval mission last September. At that time it was felt that it was only a question of time till Greece would again ask for another mission.—ED.

ITALY

A. NAVAL

New destroyers and submarine.

The destroyer *Cesare Battisti* was recently launched at the Odero Yard in Sestri Ponente (Genoa). One other ship of this type has already been launched, the *Nazario Sauro*, while two others—the *Daniele Manin* and *Francesco Nullo*—are under construction at the Quarnaro Yards. The submarine *Masaniello* was recently launched at the Franco Tosi Yard, Paranto.

NOTE.—The above destroyers are of 1,280 tons, develop 35 knots, and mount four 4.7-inch guns, six 21-inch torpedo tubes, and carry 30 mines. The submarine is the first of her class of four boats to be launched. She is of 775/920 tons, speeds of 17/9 knots, and mounts one 4-inch gun and six 21-inch torpedo tubes.—ED.

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2. *Naval fuel.*

[By Commander Manfredi Gravina, Royal Italian Navy (retired)]

The problem of fuel, which has recently received so much attention in the press, is, of course, of the greatest importance to the Navy. The late European war has taught us a lot on this matter, and our preparedness in 1914 was mainly due to the foresight of the then chief of naval general staff, Admiral Revel, who had stored in our depots great quantities of fuel. But even these were not sufficient in the long run, and in 1917 we were forced to place the following terrible dilemma before our allies, and principally England: "Either you give us the necessary fuel or we can not go on fighting." The fuel was given to us, but this experience showed that in war time, when a part of the market is closed, and railroads are mainly occu-

pied with army business, the enormous supply of fuel required by a great nation which has no natural resources of her own can only be conveyed by sea. And in any case *all* our supply of liquid fuel must come by that way.

It is, therefore, one of the most important duties of the Navy to protect maritime communications through which our supply of fuel has to come. But the Navy itself is in need of fuel, and in great quantities.

It is also interesting to note the total figures of our normal imports of coal and oil. In the first quarter 1926 we imported 3,126,000,000 tons of coal as compared with 2,400,000,000 tons in the first quarter 1925 and 2,000,000,000 tons in the first quarter 1924, with an increase of 28 per cent on 1925 and 58 per cent on 1924. The importing countries were Great Britain with 1,744,000 tons (56 per cent of the total amount), Germany with 989,000 tons (of which 652,000 were war reparations), the United States with 136,000 tons, France with 125,000 tons. As regards oil and its derivatives, the total importation in 1925 was 700,000 tons, from the countries which produce the best qualities, such as Pennsylvania and Texas (Mexican oil is of inferior quality, too thick and containing sulphur). Importation of good naphtha from Russia is now beginning again, while Persia and the East Indies continue to produce small quantities.

The Italian Navy purchases its best coal exclusively from Great Britain (Cardiff); but in normal times it also uses a lot of domestic coal (from the Arsa in Istria and Bacu Abis in Sardinia) and most of our fuel oil comes from the Black Sea. In the Navy, the gradual substitution of liquid fuel for coal is caused by technical reasons overruling economic considerations. These technical reasons are its greater heating capacity, the greater autonomy which it gives to single units, rapidity and cleanliness of fueling, possibility of suppressing smoke. So that on the bigger ships, liquid fuel, the most expensive of all, is now being largely used.

The fact that the mercantile marine is always using more liquid fuel may be explained by the difficulties concerning personnel which liquid fuel helps to overcome. The rapid development of internal-combustion motors (Diesel engines) has extended their use as the most convenient type. At the end of the third quarter 1926, 869,049, tons of shipping with Diesel engines were under construction as against 953,199 tons of steamships (according to Lloyd's). If it were not for British shipbuilders, who, bound to the British coal industry, still build 60 per cent of their ships with steam engines, the world's output of ships with Diesel engines, to which Italian builders have now devoted their attention, would now be greater than the output of steamships. Naval internal-combustion engines with above 10,000 horsepower have been produced (Germany during

the war built submarines with as much as 12,000 horsepower and ships are being fitted with four engines totaling over 30,000 horsepower). It is true that the cost of these engines is still 10 to 15 per cent greater than that of the equivalent steam engines, but the total working economy is 25 to 30 per cent on the side of the Diesel engines, including an economy of 20 per cent derived from the engine, the increase of the space useful for freight, the smaller time employed in fueling, etc. Professor Cadman, technical councilor of the Anglo-Persian Oil Co., has recently summed up the result of many experiments in this small comparative table, in which the weight and bulk of coal are taken as a basis:

	Weight of fuel	Bulk of fuel
Coal	100	100.00
Oil burnt in the boilers	70	53.75
Oil used in internal-combustion engines	28	21.50

It is important to note that the economy deriving from the use of Diesel engines increases with the length of the cruise as great radius of action enables ships to fuel when it is most convenient to do so.

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3. Coordination of supply.

Pursuing its policy of coordinating and unifying so far as possible all military organizations, the Government had decided on the unification of the supply services of the Army, Navy, and Air Force, and has appointed a purchasing board, composed of members of all the military administrations. This board is presided over by General Cavallero and first met last June. Its first session ended December 21, 1926, and the results of its activities are now announced to be the following:

The board appointed two committees. The first was to standardize specifications of the material used for clothing, equipment, barracks, and housing by the Army, Navy, and Air Force, and to unify the great number of different types that had been used by the separate administrations, so far as was possible, without neglecting the special requirements of each administration. The 416 types of clothing and other materials were reduced to 239. The 189 types of cloth were brought down to 75 types; the 29 kinds of woolens to 14.

During its sittings, the committee also heard many of the more important contractors in order to have first-hand information on the various kinds of material and to coordinate, so far as possible, military requirements with the interests of trade and industry. The committee also unified the limits of toleration allowed in accepting material not exactly answering to specifications. These limits varied

widely from administration to administration, and often did not take into account the difficulties encountered by the trade in meeting with the required specifications. All this has now been revised and brought up to date.

The second committee had to unify and rewrite the regulations governing the purchase and delivery of supplies, especially food, fodder, and fuel, to the three military administrations. This committee decided to follow the following principles:

(*a*) To define requirements with the greatest technical and commercial exactness so as to avoid any misinterpretation.

(*b*) To prefer, so far as was practicable, low-priced goods.

(*c*) To determine the methods of analysis to be followed in doubtful cases.

The purchasing board in its meeting on December 21 approved the specifications drawn up by the committees, so that henceforth the conditions for supplying, delivering, and testing material will be the same for all military administrations. These specifications will be published so that the trade will be able to know the goods that the State requires in moderate quantity in peace time and which it will require in great quantities in case of emergency.

There will also be established a central testing board, to which all appeals concerning testing of materials supplied to military administrations will be referred. This board will be presided over by the general of the Naval Supply Corps, Pietro Ferri.

B. AERONAUTICAL

1. Italian aeronautical notes.

(*a*) STABILIMENTO COSTRUZIONE AERONAUTICHE (S. C. A.), ROME

The airship *N–4* of 653,320 cubic feet, approximately the same volume as the *N–1* (*Norge*), is approaching completion and in January the parts will be sent to Ciampino for assembly. The envelope is already finished and is in storage at the S. C. A.

The control car is of the usual steel tubing fitting against the bottom of the hull. The control compartment is in the nose behind which to starboard is the wireless telegraph cabin. One large compartment occupies the rear half of the car. This part is not divided up into special cabins as was the case in the original control car of the *N–1*. The lavatory is in the extreme stern of the car.

Power is supplied by three modified Mayback engines developing 245 horspower at 1,400 revolutions per minute, placed in power cars, two laterally and one on the center line aft. The circulation of air through the pointed radiator in the nose of each nacelle is regulated by a single vane placed behind the right and left ends of the radiator.

These vanes are opened or closed by means of levers projecting inside the nacelle. When closed, the air current can not pass through the radiator as the small space between the radiator and the aluminum bulkhead behind it is sealed.

Water ballast is not contained in the usual bags but in cylindrical tanks rounded at the top and bottom, exactly similar to the fuel tanks. In the bottom of each water tank is a large release valve.

The parts for the *N–3* airship have been sent to Japan and General Nobile is to arrive there in January to supervise the assembly and flight tests. (NOTE.—See "Japan" in this number.—ED.)

At the S. C. A. is the car of the new semirigid *Mr–2*.

The *Mr–2* has a volume of 38,210 cubic feet, and its dimensions are as follows:

	Feet
Length	110.89
Maximum diameter	25.59
Height	41.34

The power plant consists of two 40-horsepower Anzani engines mounted laterally instead of one Anzani engine mounted in the stern.

So far only the water model and a number of small parts have been made for the *N–6*, the theoretical volume of which will be 1,801,040 cubic feet, and the actual volume 1,906,980 cubic feet.

This airship, to be used for the Rome-Buenos Aires flight in 1927, will be driven by six 245-horsepower Mayback engines.

Its characteristics are expected to be as follows:

Length	feet	592.83
Maximum width	do	82.02
Height	do	88.58
Total lift	pounds	133,380
Dead weight	do	61,730
Disposable lift	do	71,650
Ceiling	feet	18,000

Construction has also been started on the *N–5* airship of 988,806 cubic feet. Like the *N–4*, this airship will be driven by three Mayback engines developing 245 horsepower each at 1,400 revolutions per minute.

The characteristics are:

Length	feet	399.93
Maximum width	do	73.82
Height	do	87.27
Total lift	pounds	70,000
Dead weight	do	32,187
Disposable lift	do	37,809
Ceiling	feet	18,000

Other work proceeding at the S. C. A. is the construction of new mooring masts.

(*b*) MILITARY AVIATION FIELD, CENTOCELLE

While in Rome I visited the aviation field at Centocelle to see the Coppa d'Italia race for light airplanes. The airplanes which actually started were the following:

1. Bican on *Avia B. II. 11* (60-horsepower Walter).
2. Sartori on *Macchi 20* (60-horsepower Lawrance).
3. Rustici on *Macchi 20* (45-horsepower Anzani).
4. Sonning on *Udet 12* (80-horsepower Siemens).
5. Canzini on *C. F. 2* (40-horsepower Salmson).
6. Von Conta on *Messerschmidt* (30-horsepower Bristol).

The race consisted of 9 laps of a 20.82-mile triangular course between Centocelle and Ciampino. The classification of the results followed the formula

$$V_m = \frac{C_u}{C_t} = \frac{V_{max}}{V_{min}}$$

where

V_m =Average speed in race.
C_u =Useful load.
C_t =Fuel and oil consumed.
V_{max}=Maximum speed.
V_{min}=Minimum speed.

The winner was Bican, who also made fastest time, covering the 187.34 miles in 2 hours 6 minutes 13 seconds (89 miles per hour).

While at Centocelle I saw the new Fiat *C. R. 20* pursuit biplane which was undergoing its flight tests at Montecelio. The *C. R. 20* has the Fiat A–20 engine developing 400 horsepower at 2,200 revolutions per minute. The wing strutting is a simplified version of the Warren truss arrangement used on the *C. R. 1* (300-horsepower Hispano-Suiza) now in service in the Italian Air Force. In the new airplane the upper wing has the greater span contrary to the earlier type.

Also at Centocelle was the new Caproni *Ca. 73 ter* with 2 Isotta-Fraschini 500-horsepower "Asso" engines. This is a modification of the *Ca. 73* bomber. The cabin contains seats for 10 passengers but the quarters are cramped and the headroom insufficient as is to be expected considering that the airplane is merely an alteration of a military type.

(*c*) CANTIERE NAVALE TRIESTINO, MONFALCONE

The C. N. T. seaplane factory is located in the dockyard of the great shipbuilding firm at Monfalcone on the Adriatic, north of Trieste.

The company employs altogether about 5,000 men and covers an area of 300,000 square yards. Among the steamships now being constructed are the *Vulcania* and the *Saturnia*, each of 22,000 tons

gross and with two Diesel engines developing a total of 20,000 horsepower.

The seaplane branch which was started in November, 1923, covers an area of 8,000 square yards and employs 400 workmen. The production of the factory is very small but extremely varied.

An order has just been completed for 11 *C. A. N. T. 6 ter* bombers with three 400-horsepower Lorraine Dietrich engines driving tractor screws. This airplane is designed to carry one 1,764-pound torpedo mounted on one side or the other of the hull under the lower wing and for which no means of heating is provided. Bomb racks are also provided for the following alternative loads: Two 1,102-pound bombs, four 551-pound bombs, or eight 220.5-pound bombs.

The crew of four is arranged as follows: In the nose is the navigator's cockpit immediately behind which are the two pilots who are placed side by side. Abaft the wing is placed the rear gunner who also controls the bomb releases. Four aluminum gasoline tanks on each side of a central passage are arranged in the hull between the pilots and gunner.

The *C. A. N. T. 6 ter* is of wooden construction. The diagonally braced ribs are of spruce. The box section spars have plywood sides and spruce tops. The wing section is a Göttingen No. 426. The interplane and tail struts are of cold drawn steel tubing.

Behind the central engine is a Bristol gas starter made by the French Gnome & Rhone Co. This starter operates all three engines and is worked by the occupant of the rear cockpit by climbing out on top of the hull. The aluminum piping for the fuel and water lines is protected by a special varnish to prevent the action of salt water.

"Knockout" fire extinguishers are provided. If a fire occurs at any carburetor air intake, a fusible wire across the intake is broken which causes a red signal to appear in the pilot's cockpit. The pilot then operates the appropriate lever spraying carbon tetrachloride over the engine affected.

The *C. A. N. T. 6 ter* is also made in commercial form. In this case there are three seats in the nose accommodating the radio operator and two pilots, and nine seats in the cabin in the hull behind which are the fuel compartment, lavatory, and luggage hold.

The C. N. T. have constructed a number of training seaplanes of various types, most of which use the Caudron 29 wing section.

There was seen a new type of light bombing seaplane known as Type 21. This seaplane has been designed to take part in the competition at Vigna di Vallo. Its chief competitor will be a Savoia *S–16 ter* practically identical with the seaplane used by de Pinedo

on his famous flight to Tokyo, with the exception that the Isotta Fraschini "Asso" 500-horsepower engine will replace the 450-horsepower Lorraine Dietrich. The "Asso" engine is also used on the *C. A. N. T. 21*, the wings of which were constructed to have a load factor of 10, but which did not break until 11.5 was reached.

Following is a list of the more important types of seaplanes produced at the C. N. T.

C. A. N. T. 6, torpedo and bomber (three 300-horsepower Fiat A 12 engines).
C. A. N. T. 6 bis, torpedo and bomber (two 400-horsepower Lorraine Dietrich I. F. engines).
C. A. N. T. 6 ter, torpedo and bomber (three 400-horsepower Lorraine Dietrich I. F. 11 built).
C. A. N. T. 6 ter, commercial (three 400-horsepower Lorraine Dietrich I. F. engines).
C. A. N. T. 7 two-seater dual-control training flying boat (160-horsepower, Isotta Fraschini V–4, or 200-horsepower Spa engine).
C. A. N. T. 7 bis, dual-control training (250-horsepower I. F. V–6 engine—29 built).
C. A. N. T. 10 bomber (400-horsepower Lorraine Dietrich I. F. engine).
C. A. N. T. ter, commercial (400-horsepower Lorraine Dietrich I. F. engine—12 built).
C. A. N. T. Schneider cup racer (400-horsepower Curtiss D–12 engine).
C. A. N. T. 12 observation (250-horsepower I. F. V–6 engine—4 built).
C. A. N. T. 13 amphibian (400-horsepower Lorraine Dietrich I. F. engine—2 built).
C. A. N. T. 15 single-seater pursuit (400-horsepower Fiat A–20).
C. A. N. T. 18 single-seated advanced training (250-horsepower I. F. V–6—8 built).
C. A. N. T. 19 deck-landing monoplane float seaplane (400-horsepower Fiat A–20—not yet built).
C. A. N. T. 20 all-metal landplane carrying four tons' useful load (4 I. F. "Asso" 500-horsepower engines—not yet built).
C. A. N. T. 21 light bomber (500-horsepower I. F. "Asso"—2 built).

JAPAN

A. NAVAL

1. Destroyer and submarines completed.

Destroyer *No. 31* building at the Maidzuru naval station; submarine *I–3* building at Kawasaki Dockyard, Kobe; and submarine *Ro–67* building at Mitsubishi Dockyard, Kobe, have been completed.

NOTE.—The destroyer is of 1,445 tons, 34 knots, and mounts four 4.7-inch guns and six 21-inch torpedo tubes. *I–3* is of 1,970/2,400 tons, surface speed 20 knots, and mounts two 4.7-inch guns and six 21-inch torpedo tubes. *Ro–67* is of 1,000/1,500 tons, speed of 17.5/10 knots, and mounts one 4.7-inch gun and six 21-inch torpedo tubes.—ED.

2. *Radio-controlled torpedoes.*

Press reports state that the Japanese Navy is carrying out extensive experiments with radio-controlled torpedoes.

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3. *Cruiser "Furutaka."*

Hector Bywater in a recent article on the Japanese Navy states "it remains to be seen whether the extra gun power of the *Furutaka* class of cruisers has not been purchased at the expense of structural strength and seaworthiness."

The following is quoted from the Jiji of December 7, 1926:—

While the *Furutaka* was participating recently in maneuvers it was discovered that about 7,000 rivets in her bottom had sheared. The naval authorities are much concerned as she is a new ship recently commissioned. She was put in dry dock at Yokosuka immediately following the maneuvers and workmen from the Mitsubishi yard, Nagasaki (builders) were sent to Yokosuka in connection with repairs.

NOTE.—The *Furutaka*, recently completed, is a very interesting type, embodying many original ideas. She, and her sister ship, the *Kako* are of 7,100 tons, develop 33 knots and mount six 7.5-inch guns and four 21-inch torpedo tubes. The guns are all on the center line, in single gun turrets, 3 forward and 3 aft, No. 2 and No. 5 turrets being high. This class was completed in 1926. See the January BULLETIN for further details of these ships.—ED.

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4. *Itinerary for Japanese training squadron, 1927.*

The Japanese Navy Department has under consideration the itinerary for the next training cruise of midshipmen beginning June, 1927. Subject to final approval the cruise as contemplated will include the following ports: Leaving Yokosuka June, 1927, to Honolulu, San Francisco, and California ports, transit of Panama Canal, New York, Philadelphia, transit Panama Canal, Manila, Batavia, Singapore, Hongkong, Shanghai, return Yokosuka January 1928.

The training vessels are to be the *Asama* and *Iwate*.

NOTE.—These vessels are old armored cruisers utilized for this duty. Last year the training squadron went to Europe; the year before to South and North America.—ED.

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5. *Three Japanese ships go aground.*

The light cruiser *Isudzu* and destroyers *Nos. 7* and *9* while cruising in formation grounded on October 16, 1926, in the Shimonoseki Straits while enroute from Sasebo to Osaka. Fog is given as the cause of the grounding.

Repairs to the vessels required four weeks.

NOTE.—The *Isudzu* is a light cruiser of 5,570 tons, developing 33 knots, mounting seven 5.5-inch guns, and built in 1923. The destroyers are modern boats of 1,400 tons.—ED.

6. Change in regulations of Higher Naval College.

The following article appearing in the Jiji is quoted:

Heretofore 10 or 15 students have been admitted to the Higher Naval College every year as navigation students.

Beginning the next fiscal year this will be discontinued: they will no longer be enrolled as students of the Higher Naval College but will be sent to the training ship *Fuji* where they will be taught navigation, the practical side of which will be given on board the *Kasuga*.

NOTE.—These two vessels are obsolete battle ships built in the last century and now used largely for school ships.—ED.

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7. Replacement program.

[Source: English press]

After undergoing considerable modification, the new Japanese naval program, designed to supplement that of 1922, has now been approved by the Government, and is to be submitted to the Diet during the coming session. It is proposed to spend an additional £26,000,000 on new construction within the next 5 years, namely, on 4 cruisers of 10,000 tons, 15 large destroyers, 4 submarines, 2 special-service vessels, and 3 river gunboats. The cruisers are to be replicas of the *Nachi* class, with a speed of 33 knots and an armament of nine 8-inch guns on triple mountings. The destroyers were originally designed as flotilla leaders, to be armed with 5.9-inch guns, but in the interests of economy the displacement will be kept at 1,800 tons and 4.7-inch guns be substituted for the heavier weapons. The 15 new boats are additional to the four that were sanctioned last year. All 4 submarines will be of large dimensions, not less than 2,000 tons. Of the special-service ships, one is understood to be an aircraft carrier and the other a minelayer. The vessels mentioned are to be completed by not later than 1931. Meanwhile a number of units authorized under the 1922 program have yet to be launched. They include four 10,000-ton cruisers, about 20 destroyers and 18 submarines. The submarine *I–2* of this program, which went afloat at Kobe recently, appears to be the largest underwater craft so far built in Japan. She is stated to be 2,200 tons, with a speed of 25 knots. The armament is given as two 4.7-inch guns and a 3-inch antiaircraft gun. An airplane is carried on board.

NOTE.—See the January BULLETIN for further notes on this so-called "replacement program."—ED.

8. Aircraft carrier "Akagi."

The aircraft carrier *Akagi* returned to Kobe on November 12 after having completed its first official test in the Pacific. According to the press the results of the test were satisfactory. The *Osaka Mainichi* of November 13, 1926, states in this connection—" the pressure of the wind acted evenly on all parts of the hull and no rolling or pitching to any extent was felt. It was found that some inequilibrium occurred in anchoring in a deep sea and during a heavy swell, and this will be a subject for further study." This ship entered the Kure Navy Yard on November 19 for the purpose of having her guns mounted. It is reported that they are to consist of ten 8-inch guns, four 4.7-inch guns, and twelve 4.7-inch high-velocity antiaircraft guns. The planes for the ship are being manufactured at the Hiro Naval Airworks and the Aichi Chronometer & Electric Machine Co., and are expected to be completed by March, 1927.

NOTE.—The *Akagi* is of 27,000 tons and will have a speed of about 29 knots. The *Kaga*, her sister ship, was originally designed as a battleship and will make only 23 knots. The *Kaga* is not at sea yet.—ED.

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9. Imperial rescript to the army and navy on the occasion of Emperor Hirohito ascending the imperial throne.

On ascending the imperial throne of an eternal lineage, in succession to our illustrious ancestors, we hereby make this announcement to our beloved sons in our army and navy:

Our imperial father favored you with instructions on the five articles of the spirit that should animate those serving in the imperial army and navy, thereby showing the way in which they should discharge their duty in all sincerity. And we are pleased to say that you of our services on land and sea, observing these sacred instructions day and night, have through successive wars striven for the enhancement of the national glory and the enlargement of the sphere of imperial sway and have thus helped in the consummation of the great imperial work of unprecedented magnitude.

Conscious of the love and affection with which our imperial father cherished the forces, the command of which has fallen upon us, we rely upon the loyalty and bravery of you our soldiers and sailors. We rely upon your assistance in our efforts to carry out the policy bequeathed by our imperial father and thereby to enhance still more the glory of the Empire and promote the welfare of all our subjects. It should be your aim to render us your services according to the instructions given you by the late Emperor, to be more willing than ever to be of service, to be careful in your way of thinking, and to diligently discharge your respective duties in conformity with the progress of the times and the general tendency of affairs in the world, so that you may thereby be able to be really our trusted supports and contribute your share to the furtherance of the imperial policy.

NOTE.—With the death of Emperor Yoshihito on December 25, 1926, the Crown Prince Hirohito ascended the throne, being the one hundred and twenty-fourth of his line. The new Emperor is 25 years old, has been educated in the ways of the west as well as of the east, has traveled extensively, and is said to be more democratic than his late father.—ED.

B. AERONAUTICAL

1. Dirigible "N–3."

According to press reports, Captain Nobile will arrive in Japan shortly from Italy to superintend the assembly of the *N–3*. He will remain in Japan until May, 1927.

NOTE.—The *N–3* was recently purchased in Italy by Japan and sent out in sections. She is a sister ship of the *Norge*, of the North Pole flight, and is considerably smaller than the *Los Angeles*. It is also reported that the Japanese will entrust the designing and construction of two other dirigibles to Nobile as soon as the *N–3* is finished.—ED.

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2. Aviation to be taught at naval academy.

The Japanese Navy Department has adopted measures to increase aviation knowledge and training throughout the commissioned personnel of the navy. Courses in the fundamentals of aviation have been adopted at the naval academy which will be combined with actual flying experience.

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3. Kasumigaura naval air station.

The Kasumigaura naval air station was recently visited.

PLANE EQUIPMENT

The only recent change in the plane equipment (land or sea plane) is the replacement of Avro and Hansa seaplanes by the *Yokosuka* navy type seaplane for training purposes. This plane was described as "New type training plane, 1925 model." There are 21 of these planes in commission at the present time. When a total of 42 are received, all Hansa and Avro (seaplanes) will be decommissioned and placed in reserve. It is a biplane tractor, two-seater, dual control, with two floats and one 130-horsepower Benz motor.

PERSONNEL

The officer student pilots have been increased from 20 to 24 and the enlisted student pilots from 40 to 48. This includes personnel under training for both land and sea planes.

It was stated that the enlisted pilots turned out have not been efficient when used for fleet work.

There are 20 civilian mechanics employed in the engine-overhaul and instruction shops. These men are assigned to this duty from the Yokosuka Navy Yard and are changed every three months. They act as leading men for the enlisted mechanics and are used

for difficult jobs of engine repairs. It was stated that a like number of civilian mechanics from the Sasebo Navy Yard were used in a similar capacity at the Omura air station. There are 200 men at each of the Sacebo and Yokosuka yards employed in the overhaul of planes from the Sasebo and Omura and the Oppama naval air stations.

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4. Organization of naval aviation bureau.

An appropriation of 48,000 yen (about $24,000), was approved by the cabinet for the organization of a naval bureau of aeronautics, and if the budget is passed by the coming Diet the bureau will be established beginning April 1, 1927.

The details of the organization are now being studied by the Vice Minister of the Navy. The affairs of naval aviation heretofore have been handled by:

(1) Naval technical department (under Rear Admirals Nagashi, Kuwahara, and Iigura—matters relating to matériel).

(2) Educational bureau, Navy Department (under Lieutenant Commander Nagamine—matters relating to education and training).

(3) Bureau of military affairs, Navy Department (under Lieutenant Commander Matsunaya—general administration of aviation).

The practice of leaving the work in the hands of different bureaus was found undesirable; hence the creation of one office to handle all matters concerning aviation.

As far as known now, the naval aviation bureau (Kaigun Koku Hombu) will be headed by a vice admiral and its sections to be headed by rear admirals. There will be three sections:

(1) General section, to handle the general administration of aviation.

(2) First section, personnel.

(3) Second section, matériel.

The organization will be much smaller than that of the army. The personnel of the office will consist of the following:

14 or 15 officers.

3 or 4 civilian experts.

4 or 5 civilian employees.

Airplane factories in navy yards and a section of the Naval Technical Research Laboratory will be subordinate to this new office.

Vice Admiral Y. Yamamoto, the present commander in chief of the training squadron, is prominently mentioned as the possible head.

5. *Aviation notes.*

[Source: M. I. D.]

(*a*) *French instructor.*—Lieut. P. A. Doughnor of the Thirty-fourth French Aerial Regiment arrived in Japan on November 18 and will shortly take up his duties as instructor in aerial combat at the Akenogahara Army Aviation School. This officer's term of employment by the Japanese Government is three months.

(*b*) *Naval air students.*—It is announced in the Official Gazette that the number of students to be admitted this year into the navy aviation corps for training purposes will be fixed at 64. These students will be distributed as follows:

Yokosuka Corps, 32.
Kure Corps, 11.
Sasebo Corps, 21.

The students will be admitted in the early part of December, 1926, to undergo training for a period of 10 months.

These students were selected from 250 petty officers who were candidates for this duty.

(*c*) *Choushuitze aero station.*—The newly constructed military airdrome at Dairen, known as the Choushuitze aero station, was used for the first time on November 11, when three seaplanes from the Sasebo Naval Aviation Corps landed there on a trial flight across the Tsushima Channel. Flights between the airdrome and Seoul and Mukden will be made by the air detachment stationed at Pingyang.

(*d*) *Students at Tokorozawa Army Air School.*—The Official Gazette announced on November 5 that 10 first and second lieutenants have reported at the Tokorozawa Army Flying School as engine students.

(*e*) *Round-Japan flight.*—The Kaibo Gikai (Naval Defense Association), of which Prince Hiroyasu Fushimi is president, has decided to buy two Kawanishi seaplanes and loan them to the Japan Aviation Co., of Osaka, for the purpose of making in January, 1927, a round-Japan flight except Formosa, Korea, and Karafuto, with the object of propagating knowledge of aviation. The expenses of this project are set at 70,000 yen. These machines are to be placed at the disposal of the Japan Aviation Co. free of charge on the condition that in the event of war these planes will be turned over to the Japanese Navy.

(*f*) *Branch headquarters of Civilian Aviation Association.*—The Imperial Civilian Aviation Association has established a branch headquarters in Kobe, Japan. This local headquarters will control the affairs of civilian aviation in western Japan and will especially interest itself in technical aviation research.

(*g*) *Grant to civil aviators to be discontinued.*—The Imperial Aviation Association has for a number of years been giving a grant of 250 yen (about $150) to third-class civil pilots and 500 yen (about $250) to second-class pilots for the purpose of encouraging aviation. The number of third-class pilots receiving this grant is 40, and the number of the second-class pilots receiving it is 10. However, due to the fact that the grant of this money has not produced the desired results, it is announced in the press that the grant to third-class pilots will be discontinued next year.

(*h*) *Air Boy Scouts.*—An aero juvenile corps has been organized. The number of youths who have become members of the organization had reached 400 by the end of October, 1926. One *Avro* type plane has been contributed by the Nishida Aeroworks, which machine, it is proposed, will be employed for the practical instruction and training of the members once a fortnight. The regulations governing this association are now under formulation.

(*i*) *Large wooden seaplane.*—The local press announces that a large all-wooden seaplane has recently been built at the Kure naval airdrome. This plane is called seaplane, 1926 type. It is further reported in the press that a test of 15 minutes resulted in a successful demonstration of the plane.

C. MILITARY

1. The Supreme Military Council.

The Supreme Military Council was created in the year 1887 and is regarded as the Emperor's adviser and staff on important matters pertaining to war. The members of this council consist of those field marshals and field admirals who comprise the board of marshals and admirals, the Ministers of War and of the Navy, chiefs of the army general staff and of the navy general board, all of whom are ex officio members, and those distinguished army and navy officers specially nominated as members by the Emperor. At present these latter include for the army the Imperial Princes Kuni and Nashimoto, the director general of army training, the chief of the army air department, the chief of the army technical department, and the commanding general of the Tokyo Defense Garrison, as well as two generals whose sole duty is that of military councilor. There are at present 13 members in all from the army and about 7 members from the navy. The Supreme Military Council directs the military policy at home and throughout the Japanese Empire and is an important coordinating body in time of war. It frequently runs at cross purposes with the foreign office and is referred to as the "Diet masters."

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2. Decrease in army officer personnel.

A study of the Japanese Officers' Directory of September 1, 1926, indicates that the number of officers on the active list of the Japanese Army on September 1, 1926, was 411 less than the number on September 1, 1925. The decrease during the year in question occurred principally in the grades of first and second lieutenants, with first lieutenants of infantry showing the greatest decrease among the combatant arms. It is also noted that the officers of the air service increased 62, making a gain of about 12½ per cent over the number on September 1, 1925. The fact that the number of officers on half-pay status decreased 60 is also worthy of notice.

It is not believed, with the exception of the air service, that the above-mentioned changes indicate anything more than a normal variation of personnel. In the case of the air service the increase undoubtedly indicates a regular annual program of expansion in that arm, which fact is already known.

D. MISCELLANEOUS

1. Visit to mandate islands.

A trip was recently made to the mandate islands. The itinerary included the following places: Palau, Ponape, Truk, Jaluit.

Neither Saipan nor the Bonin Islands were included in the trip.

No signs whatever were visible of any military or naval activity. No stores of coal or oil, or oil tanks were observed at any of the places visited. There was, however, considerable surveying in progress.

NOTE.—These are islands on which, under the Washington Treaty, Japan is forbidden to extend fortifications.—ED.

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2. Singapore naval base.

[Source: Japanese press]

The project for the construction of a naval base at Singapore, which appeared during the first Baldwin ministry and was set aside for the time being by the Macdonald ministry, was revived with the establishment of the second Baldwin ministry. It was thought that this matter had already been disposed of, but the discussions of the Council of Prime Ministers show clearly that, as a result of the question of the distribution of the burden of expenditures, a division of opinion exists. This fact acted as a fuse and a violent opposition to the Singapore project has broken out in England.

The only dominions which advocate the construction of the Singapore base are Australia and New Zealand; South Africa indicating its opposition, while Canada has from the very beginning been neutral, although it has expressed an unwillingness to assume any part of the cost of construction. It goes without saying that the Irish Free State disapproves.

Why, therefore, should any desire persist for the prosecution of the Singapore enterprise in the face of the opposition of the majority of the dominions? Were England in such affluent circumstances that the costs involved were of little consideration the situation would be different; but in view of the necessity with which England is confronted of reducing her expenditures to a minimum, we fail to see the imperative reason which impels her to incur these heavy expenditures and to divide them with her dominions. She has forgotten something vastly more important, and that is, if the Singapore base is constructed, she will have given an impetus toward a recrudescence of rivalry between the navies of the powers. Just as ignominy was attached to the name of Germany as the destroyer of international peace, so will it then be attached to that of England.

We must again urge the British nation to reflect. The construction by Great Britain of the Singapore base can not but be interpreted as an indication of hostility against Japan; and suspicion must revert to the good faith of the international dealings of Great Britain. Those having any common sense can not fail to regard Japan as one of the targets of the base.

NOTE.—See article under "Great Britain" in this number entitled "Imperial naval expenditures."—ED.

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3. Japanese economic penetration of China.

In the China Weekly Review recently there is an article entitled "Vast economic penetration follows 'friendship' policy," by B. Y. Lee, apparently a Chinese. This is quoted, as follows:

Since 1918 Japan has repented of her previous 'strong arm' actions and has actually given up her policy of imperialistic exploitation of China, at least on the surface. Since 1924 she has been devoting her energy to the economic exploitation of China, by peacefully establishing many cotton and silk mills and many other modern industrial enterprises, and granting more loans to the Hanyshping Iron Works at Hankow and other factories, the result of which may lead eventually to the absolute control and management of these enterprises.

Due to past blunders, the Japanese seemingly have learned a lesson so that now, while the major incentive may be the same, the methods are quite different. The results obviously must be more satisfactory, for China now seems to be well pleased with Japan's behavior.

When the Japanese come to China to-day, they are willing to observe the customs and habits of the people, to study Chinese language, art, and

manners, as well as to try to get along with the Chinese old-type business men. This has been a great asset, and has enabled them to expand and form new Sino-Japanese commercial and industrial enterprises. Furthermore, the Japanese Government constantly does its best to encourage and render every possible help to her nationals resident on Chinese soil.

Japanese economic influences in China are divided into two great classes, namely, commercial and industrial.

JAPANESE BANKS IN CHINA

Japanese banking institutions in China are the foundation of all Japanese commercial and industrial activities. Every large industrial enterprise is directly or indirectly under the control of one of these banks. The Han-Yeh-Ping iron works, Yu Dah cotton mill in Tientsin, and Paosen and Wha Fong cotton mills in Shanghai are under the absolute control of Japanese banks as their long-term trustees. Japanese banks, 10 in number, have branches in all the principal cities in China. Their total initial capital, not including reserves, amounts to around 350,000,000 yen.

SHIPPING

The shipping business of China is almost entirely under the control of the British and Japanese, the latter having made great strides since the May 30 affair of 1925. (The Whansien incident.—Ed.) The Japanese have steamships running to and fro in every coastal and river city of China. At present at least 5 railroads are under Japanese control, the most important being the South Manchuria Railway. Japanese influence along this line is almost entirely confined to the north. Recently there have been rumors that they are trying to grant loans to construct a line in Shantung Province, apparently an enterprise connected with the Shantung agreement. There is only one telegraph line under Japanese control. From the standpoint of wireless stations, the Japanese are in control of 14. The control of these 14 stations naturally gives Japan a stronger position in Chinese affairs owing to the facilities for distributing news and commercial information.

IRON

Having no large iron mines at home, the Japanese are naturally looking toward China to supply the ore for their daily needs for constructing battleships, modern machinery, war weapons, etc. At least the iron and coal mines are either directly or indirectly under Japanese control, while some are incorporated as Sino-Japanese companies employing Japanese experts. The most important of all is the Han-Yeh-Ping iron and coal mine, which is located in Hupeh Province and has been under the trustee of Japanese capitalists since 1911.

The company was organized by Chinese officials in 1890 with an initial capital of 10,000,000 taels. Six years later it was incorporated with merchant stockholders, making the total capital of 20,000,000 taels. Its average production of iron ore has reached 100,000 tons, although it has gone as high as 120,000 tons. In 1911, on account of the civil war and business depression, it was mortgaged to Japanese capitalists for 12,000,000 yen, with a contract to supply the ore to Japan for 40 years at a fixed rate—a very low price; that is, below the current local price. Again in 1924 another loan of 8,500,000

yen was contracted. The corporation is, as a result, nominally under Japanese control and management and could be taken over at any time they wished. In order not to arouse the public protest and suspicion, they have actually appointed only two experts, one being financial, who, contrary to their usual practice, do not stay on the job all the time. The internal management is still in the hands of Chinese.

JAPANESE COTTON MILLS

The cotton-mill industry, one of the largest and most important industries in China, is now practically under Japanese control. They are operating 32 large mills in Shanghai and 13 in Hankow, Tsingtao, and in Manchuria, besides many Chinese-owned mills are under Japanese trusteeship. In the comparatively short period of 18 years the Japanese have obtained control of about 40 per cent of the output of yarn and 50 per cent of cloth in China.

IS SILK TO BE NEXT?

Since the Japanese are already in control of two of the most important industries, namely, cotton and iron, it is not surprising to hear that they are trying to expand their influence in the silk-filature industry. This is a late item in their program of industrial expansion in China. As the silk industry is one of the most ancient and largest in the country, it is still carried on in most parts in very primitive methods where scientific methods are not yet put in practice. Since last year a silk corporation in Japan has established a very large silk filature of 500 basins in Tsingtao. The same corporation is also putting up another one of similar size in Soochow and has planned to erect a third one in Shanghai in the near future. It seems to be a very natural step for the Japanese to extend their influence along this industry, as they are already in control of cotton and iron. Most Chinese-owned silk filatures are small in size with small capital and are scattered all over the country. Certainly they can not compete with their neighbors who have more and better experience along this line, besides ample available capital.

OTHER JAPANESE INDUSTRIES

Japanese activities are not confined in these three mentioned industries. They are also operating many other kinds of factories, such as oil, flour, glass, soap, cigarette paper, match factories, brickworks, etc., the percentage of their control of the various lines running from 10 to 25 per cent. Since they have gained a foothold in so many industries, they are naturally in an advantageous position to increase their holdings. It is almost impossible to enumerate all the Japanese-owned industrial enterprises in China, particularly the smaller ones, which may be Sino-Japanese companies, or may have contracted Japanese loans. Many employ both Japanese capital and experts, but are registered as Chinese enterprises.

Conservatively speaking, the Japanese investment in China is roughly estimated to be around $1,000,000,000, including about $350,000.000 invested in Manchuria. Japanese investments in China now are practically equal to British investments.

A consideration of the above interests will indicate how deeply Japan is concerned in the northward penetration of the Canton Army. Han-Yeh-ping iron and Shanghai cotton mills alone are sufficient to account for her anxiety,

and protection of these and other industries noted in the above articles must guide, to a considerable degree at least, the Japanese foreign policy toward China.

NOTE.—Attention is invited to the article in this number under "China," entitled "Internal situation and its relation to international affairs."—ED.

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4. Japanese-American relations.

[Source: M. I. D.]

In considering the question of the present state of Japanese-American relations, it will be necessary to inquire into the attitude of several classes of society before being able to arrive at any conclusion. Were it an ordinary diplomatic question, it would be sufficiently simple to indicate the attitude of the Government, but the question affects to a greater or less degree all classes of society, and therefore requires a more extended investigation.

Let us first take what may be called the "Government," including under that term not only the present régime but prominent men of other political parties, members of the Diet, and, in general, men more or less closely associated with the political world. These men are familiar with Japan's political and economic problems, and realize that a long period of uninterrupted peace is absolutely imperative if the country hopes to solve them successfully. A major war, in view of the growing social and economic unrest, might well have the gravest consequences, politically as well as economically, and is to be avoided if at all possible. This is especially and particularly true of a war with the United States, toward which Japan occupies a dependent economic position. This is the very group, however, which, on account of their birth, breeding, education, and culture, feel the slight of the immigration bill the deepest. On the other hand, being men of wider experience and a more cosmopolitan outlook than other groups, they are inclined to sympathize with the United States in its immigration troubles. Many of them realize—what the great mass of the people do not—that the immigration bill was a broad, comprehensive measure, designed to meet a very difficult and even dangerous situation, and was not a measure aimed exclusively at the Japanese. They appreciate the difficulty of the general subject of immigration, as they are now confronted with the growing menace of immigration from Korea and China. However, they smart over what they consider a very great wrong, all the more acutely, perhaps, at the suggestion of their own racial inferiority. This group was greatly encouraged by the attitude of the President and Secretary of State, as well as of the press and general public at the time the immigration bill was passed. They believe that what they consider an injustice is so recognized by the great

majority of Americans and that, as a corollary, this wrong will be corrected by the Americans themselves in the near future. This is what they are waiting for. Should no action be taken along that line by the United States, it seems most probable that the present attitude of "suspended judgment" would change to one of bitterness and hostility, although prudence would very probably prevent any open manifestation of it. Primarily, of course, with this group, it is a racial question. While willing, under certain conditions, to be classed with their fellow Asiatics, especially in purely local matters, they will fight to the last for international recognition of racial equality.

While the determination of the attitude of the political world is very difficult, we pass to surer ground when we consider the business world. Business, especially "big business," is rapidly gaining influence in Japanese politics, and its stand on any political question is becoming increasingly important. This group, at any rate, is under no illusions regarding Japan's economic relations with the United States, and realize fully how quickly the bottom would fall out of the financial structure were anything to disturb the peaceful relations between the two countries. It is only natural, therefore, that we should find them active in attempting to smooth over the present situation and please their fellow nationals. Many of them are graduates of American colleges; more have been to the United States and have associated more or less with our own business men. As a class, they are friendly to the United States, but at the same time they are Japanese and share the feeling of common resentment. They, too, hope for some positive action on the part of the United States, not only as a balm for injured feelings, but for the material profits which such action would bring in increased business. In any case, this group may be expected to take the rôle of mediators in any important controversy between the two countries; and they are our best friends, whatever their motives may be. Even they, however, could not stand against a storm of national feeling raised by some overt act affecting racial prejudice.

It is well known, of course, that the army and navy in Japan exert a much greater political influence than is the case in our own country. It is not necessary at this time to enter into a discussion of the reasons therefor, but it may be taken for granted that the attitude of this group is well worth examination. For several years, at least, the United States has been considered what military men call the "potential enemy" of Japan. This does not mean necessarily that a conflict is expected within the near future, but it does mean that the soldiers and sailors who pass through their term of active service, are thoroughly imbued with the doctrine, and naturally pass it on to their neighbors and associates when they

return to their civil occupations. During the past year the influence of the army has been greatly extended through the system of military training in schools and of young men not in schools. By this means about half a million students and more than a million young men between the ages of 16 and 20, not in schools, come directly under army influence. The possibilities of propaganda under such favorable conditions, are manifest. Some idea of the extent of military influence may be gathered from a consideration of the fact that not less than four and a quarter million men between the ages of 16 and 40, are directly subject to such influence, and the number will increase as the new system of military training becomes more completely established. Army and navy expenditures, too, must be justified in the face of the growing necessity for economy in public expenditures—and the United States plays the principal rôle of scarecrow. The great mass of men referred to is, of course, largely inarticulate and normally exercises but little influence in political affairs. However, it is powerful, potential force, capable of being roused to activity when the strings are pulled. This group, in general, is not friendly to the United States. Prior to the Washington Conference, it had many excuses for hostilities—Siberia, Shantung, our efforts to curb their imperialistic ambitions on the mainland, etc. Most of these questions had been adjusted or had adjusted themselves, when the immigration legislation of 1924 afforded once more a grievance. Without that legislation it is difficult to see how this group could find any excuse for unfriendliness—and they may be counted upon to use that material to the limit whenever it suits their policy to do so.

Perhaps no group in Japan is quite as hostile to the United States on account of the immigration legislation referred to, as what might be called the educational group, especially that portion including middle and lower class teachers. Just why this should be so is difficult to determine, but the fact remains, and the influence of such teachers upon the youthful mind is manifest. Military training is now compulsory in middle and normal schools, and the influence of the army does not tend to improve matters. Broadmindedness is not at all a characteristic of the Japanese. The great mass of people lack even an elementary sense of humor and take themselves very serious. While the Japanese student has not yet taken upon himself the burden of saving the country to the extent his Chinese colleagues has, his present development is along that line.

The Japanese press publishes newspapers to sell. No ethical, or other inhibitions are allowed to stand in the way of making the paper interesting. There is no correlation between news items and editorials, or even items sent in by different reporters. The Japanese themselves realize that their papers are sensational and unreliable.

but at the same time they are certain to exercise a great deal of influence upon the vast reading public. Constant reiteration is certain, in the end, to have a great effect upon a comparatively ignorant people, the great mass of whom are still living, mentally, in the feudal age. Anything sensational sells more papers, and harping on alleged wrongs suffered at the hands of the United States, is always a paying procedure. Removal of the immigration question would be a great blow to the press.

We pass, then, to a consideration of the great mass of people, who have been hewing the wood and drawing the water since the dawn of Japanese history. It is a very literate people, although the great majority are so preoccupied with the immediate problem of next day's food, that they have little time or inclination to consider anything outside of that immediate sphere. Centuries of feudal rule have made them followers not leaders. Even though the social and economic injustices which they suffer are beginning to arouse in them a sense of resistance, their efforts so far have been unintelligent and ineffective. They have acquired through education a racial pride which, they are constantly told, is being outraged by the action of the United States. Should it be deemed necessary by the powers that be, this mass could be whipped up into violent action upon the question of racial discrimination; without outside instigation, the mass will remain reasonably quiescent upon this subject.

From the above consideration, it is believed that it is evident that there is a widespread feeling of resentment against the United States, due to the immigration legislation of 1924. This feeling is comparatively quiescent at present but can be roused readily to activity if, and when, the leaders so desire. As it exists to-day, it is a powerful obstacle to good relations between the two countries.

YUGOSLAVIA

A. NAVAL

Construction of submarines.

A contract has been signed between the Yugoslavian Government and the W. G. Armstrong-Withworth Co. (Ltd.), for the construction of 2 submarines of 892 tons surface displacement.

The hulls of these vessels were under construction for the admiralty at the termination of the war and the contracts were canceled in 1919 and the hulls have since lain in an incomplete state.

NOTE.—See the December BULLETIN for a survey of Jugo-Slavian policy and activities. In addition to these submarines, Yugoslavia is building in England two more coastal patrol boats.—ED.

NETHERLANDS

A. NAVAL

1. Launch of destroyer.

The Dutch destroyer *Evertsen*, building at the Burgerhouts Machinefabriek en Scheepswerf (Burgerhouts Ship & Engine Building Plant) at Rotterdam, was launched recently.

It is expected that this vessel will be completed during the coming summer and then proceed to the East Indies.

NOTE.—This boat, one of a class of six now being built by the Netherland Government, is of 1,620 tons displacement, is to develop 34 knots, mounts four 4.7-inch guns, six torpedo tubes, carries mines, depth charges, and one seaplane. See October BULLETIN for more complete description.—ED.

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2. Plant of Machinefabriek en Scheepswerf van P. Smit, jr., of Rotterdam.

This plant was originally a small shipbuilding and repair plant owned by P. Smit, jr. Upon the death of the latter the control passed to a group of Dutchmen.

Since this new management, efforts have been made to extend and improve the plant and to branch out into ordnance work.

After the armistice, this concern obtained a few ordnance machines and stock from Germany and started after ordnance orders.

It appears now that a small section of the plant has been turned over to a German outfit controlled or working through the Hollandsche Industrie en Handelmaatschappij.

The shipbuilding plant is unimportant and is used mostly to overhaul the large fleet of tugs and barges maintanned by an allied company and to build floating derricks.

The construction of the ordnance plant is now just commenced.

The Hollandsche Industrie en Handelmaatschappij has obtained a contract from the Dutch Army to remodel 160 field guns and the plant is being reconstructed so as to handle this contract. The work consists of remodeling the carriage to increase the elevation from 16° to 40°, thus increasing the range from 4,500 to 13,000 yards. In order to accomplish this a new tube is being fitted five calibers longer than the old tube. These tubes are to be obtained from Sweden or Germany and will be rifled at this plant. The gun, when modified, should be a modern field gun but the cost is enormous and probably as great as new guns would have cost.

A naval 4-inch gun mount is being remodeled according to German design to provide for universal control, eliminating the errors

due to roll and pitch. This is to be accomplished by mounting the gun in a cardigan ring and numerous gears, etc.

There has been considerable mystery surrounding the activities of this plant of P. Smit, jr., its personnel, and its capacity. I am convinced that the ordnance part of the plant is a German organization, operating through the Hollandsche Industrie en Handelmaatschappij, and that its capacity is now very limited. The people back of it seem to have enthusiasm and a certain amount of money for experimental purposes and, no doubt, with any prospects of business, would expand the plant as might be necessary.

NORWAY

A. NAVAL

1. Modernization project.

The new organization proposal for the Norwegian Navy embodying the rebuilding of the large ships now on hand, and equipping them with new machinery and heavier armament and guns which will cost about 5,000,000 to 6,000,000 kroner per ship, is meeting with very sharp opposition on the part of naval officers. They recommended that the money appropriated for this purpose be used for new construction, even though the funds for this must be gathered for a period of years in order to have sufficient for the purpose.

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2. Reorganization of the navy.

On July 3, it was decided in council to inform the Parliament of the proposal for the new organization of the defense, which was under preparation. Since the war, most countries have felt the necessity of a revision in this regard, for instance Denmark by the law of August 7, 1922, and Sweden by the law of May 26, 1925. So far as the Norwegian Navy is concerned, there are still some points which have not yet been decided and a committee has, therefore, been appointed to settle these questions.

An end must be made to the transitional (or rather, disorganized) state of the Norwegian defense which has now existed for years. On July 15, 1919, Parliament decided to appoint a commission to deal with this question. This commission was appointed on April 16, 1920, and in the period from December, 1921, to February, 1924, they dealt with a number of suggestions regarding land

and naval defense, both arms of the service having had an opportunity of expressing their opinions in this connection.

In the spring of 1926 the existing Government submitted a proposal for a new army organization, but nothing regarding the Navy. When the present Government took office, however, they found that it would be necessary to treat the reorganization of the army and navy together, so the army proposal was withdrawn. Furthermore, the Government thinks that better results would be obtained if the whole question of the reorganization of the defense be treated as a whole and not, as previously suggested, by considering first the main proposal, and then the details.

As regards the duties, organization, etc. of the naval defense, the commission states as follows:

Both the defense committee and the naval authorities have come to the same conclusion as stated by the defense committee in 1910. The defense committee deems that the armed neutrality service is one of the most important tasks of the navy but it points out that such service is of no effect if the navy has not the power and ability to enforce neutrality, and it, therefore, demands that if Norway's neutrality be broken, the navy be in a position to defend, and uphold the country's existence and independence. The department feels that a detailed enumeration of the navy's duties is not sufficient to make the organization clear. In point of fact, the duties of the navy are distinctly set forth but their execution depends on economic resources; when Norway's economic resources are considered, it is evident that some of the duties naturally devolving on the Navy (owing to our location and commerce of the country) must be set aside as having only an indirect influence on our naval policy. This applies primarily to the defense of our merchant marine and our overseas trade which would entail a far stronger fleet than Norway can afford to keep up.

The securing of our import trade depends on our control of the adjacent waters. On the other hand, our overseas imports in time of war are of such vital importance for the existence of our country that in reorganizing our naval defense its ability to defend our trade is one of the most important considerations.

Both the naval construction board and the defense committee have based their plans for naval defense on the help given by the belt of rocks and islands girding the coast and certain coast fortifications. They furthermore agree that large armored ships are beyond the resources of our country. Both commissions agree that we must have smaller ships. The naval construction board insists on the ships having high speed, so that they can be called quickly to the defense of any threatened point, and the item of speed enables them to choose either to fight or to withdraw, according to the forces of the enemy. The defense commission, however, finds the neutrality defense of more importance, and this is why it lays weight on the number of vessels and reduces the demands for speed.

The following is stated by the commission regarding the training of naval officers:

The naval officers' corps consists of permanent and nonpaid officers educated at the naval academy. The naval corps (permanent and nonpaid officers) represent the line. The principal divisions are artillery and deck sections.

The naval artificers' corps furnishes the personnel for technical and mechanical service. The chief divisions of this corps are the machinery and torpedo (mine) section. Then come the special sections such as shipbuilders, armorers, aviation mechanics, etc. The torpedo section (mine) has a permanent staff as well as conscripts; the other sections permanent staffs only. The commissariat corps has only a few permanent officers for shore service; the balance are conscripts. The medical corps has a few permanent surgeons; the balance are conscripts. The fundamental principle of training is to give all the pupils a similar education until they reach the grade of officers. At this stage some of them leave the service, while those who wish to be permanent officers continue their education in the Navy. Of the permanent officers most of them are on duty in the navy all the year, while a few of them are exempt from service and can engage in private work.

The defense commission advocates the employment of conscripts while limiting the employment of the permanent staff. In this respect the commission for reasons of economy has gone rather far regarding the permanent service of the paid staff in time of peace, and in its proposal it suggests that the number of paid officers not exceed the quantity that can be employed all the year round in time of peace. The commission proposes that the education of permanent naval officers be based on the naval academy and that the posts of conscript naval officers be filled from the ranks of the merchant marine. A separate training is also advocated for the artillery, signal, and mine-service staffs. The mine personnel is to be transferred to the naval corps, while the construction corps will no longer have the rank of officers. It is proposed to do away with the medical and commissariat corps. The medical service on board ship is to be filled by naval surgeons and the commissariat service by officers from the other corps who have completed a certain course.

The admiral in command and the admiralty staff agree with the defense commission regarding the questions concerning naval officers, but propose a common education for the artillery, signal, and mine personnel. They also advocate that the medical corps and artificers' corps be maintained and find the reorganization of the commissariat corps very unnatural.

The Navy Department makes the following statement:

As far as regards the personnel and its employment, we agree with the defense commission on the chief points. As regards the permanent paid officer personnel, it must not for economical reasons exceed the number that can be employed all the year round on cruises, maneuvers, and in the administrative branches of the service. Otherwise, the service must be based on the employment of conscripts not only in time of peace but also under extraordinary circumstances and in case of war. As regards the conscript personnel, the defense commission recommends a short period of training. The Navy Department, however, feels that this personnel must be given an education which will fit it in every way to perform the service demanded. For this reason the present system of providing as common an education as possible for the permanent and conscript personnel should be maintained. Furthermore, this personnel should be employed more extensively than has been the custom during time of peace, so as to provide the necessary training and experience in the event of war.

NOTE.—Details of the present organization of Norway's Navy were given in the October BULLETIN.—ED.

POLAND

A. NAVAL

The Polish Navy.

The "Polska Zbrojna" recently devoted two long articles on the subject of the Polish Navy and its tasks, and advocated very strongly its reorganization at the earliest possible date. According to this paper Poland does not need any large naval vessels but requires submarines and small vessels for coast protection. In organizing the navy, special attention should be devoted to small naval engagements, to the destruction of enemy ships, and the blockading of commercial highways. The navy should not represent an independent part of the armed forces, and it is therefore correct, in the opinion of this paper, that it should be under the jurisdiction of the Minister of War, and during a war under the commander in chief of the army. All plans of mobilization as well as all questions touching organization and training should be worked out in the general staff. There should be a navy department in the Ministry of War under the direction of naval experts, which should be entrusted with the task of supplying the navy with material and personnel. The commander in chief of the navy and the commander in chief of the army should be members of the council of war.

The two Polish torpedo-boat destroyers under construction in France have been given the names of *Burza* and *Wicher*. There are also a number of submarines under construction in France for Poland. The school ship purchased in France for the Polish Navy (the old French ironclad cruiser *Desaix*) is being conditioned and is soon expected in Polish waters.

NOTE.—The two destroyers are building at Chantiers Navals Francais, Caen. They are of 1,540 tons and should be completed, one in 1928 and one in 1929. No other details are now available. It is doubtful if there are a number of submarines under construction. However, it has been previously reported that Poland was negotiating for six submarines of the *Ariane* class (600/765 tons).—ED.

RUMANIA

A. NAVAL

1. Naval and military requirements.

The following is a tabulation of war matériel needed by the Rumanian Government. It is understood that money will not be easily available for this imposing program.

NAVY

1 cruiser (5,500 tons), approximate value 715,000,000 lei.
1 destroyer (1,700 tons), approximate value 500,000,000 lei.
2 submarines (600 tons), approximate value 250,000,000 lei.
6 submarine-chasers (100 tons), approximate value 100,000,000 lei.
1,000 mines, approximate value 150,000,000 lei.
2 wireless stations.
20 radio receiving sets.
6 semaphore stations.
40 electric-photo apparatus.
1 submarine station.
10 guns, 6-inch.
10 guns, 4.7-inch.
10 guns, 3-inch antiaircraft.
1 gun, 4-inch.
5 machine-guns, Hotchkiss(?).
Torpedoes for submarines and destroyers.
Munitions and explosives.
Searchlights, 36-inch and 80-inch, for ship and seacoast.

ARMY

11 sound-ranging stations.
4,560 infantry field glasses.
280 infantry telemeters.
480 V. B. dischargers.
20,000 signal pistols.
250,000 signal cartridges.
350 artillery angle-measuring compasses.
62 aiming circles.
700 two-branch periscopic range finders.
12 guns, 4.1-inch.
100 guns, 4.7–6-inch.
50 guns, 6-inch.
2,400 shells, 4-inch.
16,000 shells, 4.7-inch.
6,000 shells, 6-inch.
60,000 shells for 4-inch Austrian howitzers.
150,000 helmets.
200,000 gas masks.
70,000 bayonets, Mannlicher type.

L'Echo de Paris of December 12, though giving few details, confirms to some degree the above information. This journal states that Rumania has effected a loan from Italy of 100,000,000 lira to purchase war material of which 60,000,000 is for the army and 40,000,000 for the navy. It is further stated that the 40,000,000 for the navy may be doubled and will be used in the purchase of one submarine, two chasers, and one repair ship for submarines. The purchase of 10,000,000 small-arms cartridges is also referred to.

2. *Additional destroyers.*

The Italian press prints the following information:

As a result of international bidding the Rumanian Government has ordered in Italy two destroyers of the most modern type, high speed, and with displacement of 1,800 tons.

The order for the turbine units, each of 44,000 horsepower has been given to the Stabilimento Tecninco Triestino, in Trieste, while the hulls will be built by the Pattison Yards, Naples.

NOTE.—Notes on the Rumanian Navy and her building program were given in the January BULLETIN. Italy is very influential in Bucharest, and the recent Rumanian loan is an example of this Italian influence. The majority of all war preparations of Rumania are directed against Russia because of the latter's desire to repossess Bessarabia. But the territory which Rumania also acquired from Hungary and Bulgaria makes her fearful of reprisals.—ED.

SWEDEN

A. NAVAL

1. *New dry dock.*

A new naval dry dock, the largest on the eastern coast of Sweden, has been completed at Beckholmen, Stockholm. This dock will accommodate vessels of a length of 459 feet and a beam of 78 feet.

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2. *Antiaircraft sighting device.*

The following has been furnished by the Aktiebolaget, Bofors:

GENERAL CHARACTERISTICS OF A SIGHTING DEVICE FOR NAVAL ANTI-AIRCRAFT GUNS

The sighting device in question is fitted for direct pointing with two telescopes, one for vertical sighting and one for lateral sighting.

The line of sight is independent in elevation; that is, the angle of elevation and the speed-correction angle can be applied without altering the line of sight. The range dial has a range scale with automatic correction for various angles of train. There is a dial for speed correction which has linear divisions. The deflection is applied to the telescope and is transmitted to the gun by means of the training handwheel. The line of sight is therefore dependent on deflection. The deflection dial has linear divisions.

For indirect pointing there are mechanical elevation and training indicators with or without connection to a central fire-control system.

NOTE.—A description of Bofors Steel Works was given in the December BULLETIN. They are extensive manufacturers of military and naval equipment in steel.—ED.

TURKEY

A. NAVAL

Naval notes.

There has been no new ship construction since the war. All vessels are in full commission—there being none in reserve. The battle cruiser *Yavouz* (ex-German *Goeben*), although in commission, has not been repaired, and can not move under her own power. That the Government still considers repairing her is borne out by periodical newspaper reports that various shipyards in Germany, France, and Italy have submitted new bids which are being considered by the minister of marine. The latest, but unconfirmed, report is that the contract has been let to a company at St. Nazaire for 3,000,000 ltqs. (about $1,600,000), the work to be done at the Ismidt base.

The floating dry dock which was ordered about a year and a half ago from a German firm has been delivered. Its exact capacity is not known, but it is said to be able to dock the *Yavouz*. It is new and, from a distance of 3 miles, appears to have been constructed in two sections. It is moored near the south shore of the Gulf of Ismidt almost directly opposite Derindje.

Although it was generally admitted at the time, it has not been possible to verify that during the spring of 1925 an order was placed with a Holland firm for the construction of two submarines of about 600 tons each.

NOTE.—The *Yavouz* is the only even fairly modern ship in the Turkish Navy. She was built in 1911 as the German battle cruiser *Goeben*. During the war she was repeatedly mined and bombed, and she now has two unrepaired holes in her hull below the water line. But considering Turkey's most probable Balkan opponent, Greece, the *Yavouz* is a formidable vessel.—ED.

RUSSIA

A. NAVAL

1. Soviet naval strength in the Black Sea.

The secretary general of the League of Nations has received from the president of the straits commission, through the Turkish Minister of Foreign Affairs, the report of the Soviet government upon the Soviet naval forces in the Black Sea. The reply contains no reference to air forces, about which information was also requested.

The report states that there are in commission in the Black Sea:

1 cruiser (6,409 tons);
4 submarines.
4 first-class torpedo boats.
3 gunboats.
2 sloops.
9 mine sweepers.
11 small craft, miscellaneous, and one vessel (3,000 tons) for special purposes.

There are also at Bizerta several vessels with reduced crews which are to return to the Black Sea fleet. These include the following:

1 battleship (22,600 tons).
1 cruiser (7,143 tons).
6 torpedo boats.
4 submarines.

NOTE.—So far as numbers are concerned, it is believed this statement is minimized. So far as apparent effective strength is concerned, it is exaggerated.—ED.

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2. *Submarine construction.*

Since the Soviet government came into existence the total number of new submarines built on the Baltic and Black Seas, including both completed and uncompleted, is 14. Four of these have been launched in the Black Sea; 3 are ready for launching in the Baltic, and 7 are still on the slips.

There may be two more nearing completion in the Baltic, and intended for the Murmansk defenses. There are nine pre-Soviet submarines on the active lists.

It was at first proposed to build new submarines in 1922. Building actually began in 1924. During 1922 and 1923 the program was confined to the repair of old vessels. There are now nine old vessels on the active list.

BALTIC FLEET

Submarine construction is concentrated in the submarine building department of the Baltic Shipbuilding & Engineering Works. The building program is now as follows:

Three submarines, designated *X*, *Y*, and *Z*. These are ready for launching, but have not yet received names, nor are they shown on the active list.

Details of these boats are as follows:

Displacement, 850 tons.
Speed, surface, 15 knots.
Speed, submerged, 10 knots.

Radius of action, surface, 1,000 miles; 9 miles per hour.
Radius of action, submerged, 105 miles; 5 miles per hour.
Armament, one 4-inch gun, 10 torpedoes.

When the chief naval technical and economic directorate reported to the people's commission for naval affairs that these boats would be ready for launching in October, orders were issued that work on them was to cease and that work in connection with the actual launching was not to be begun for the time being.

A reliable source states that the reason for this was that some of the skilled workers employed on these boats had been sent to Murmansk to prepare berths and workshops for submarines. This information is partially confirmed by another source, as at the beginning of October, 17 men from the submarine yard were ordered to an unknown destination.

In addition to the above, two vessels are building at the above works with German material. The details are:

Type, German U 115.
Displacement, 480 to 560 tons.
Speed, surface, 16 knots.
Speed, submerged, 9 knots.
Armament, two 3-inch guns, three torpedoes.

These boats will not be completed before the second half of 1927.

There are also at the Baltic works the parts of two submarines of larger size brought from Germany and formerly intended for Murmansk. The assembly of these has not yet begun. The chief of staff of the Baltic naval forces has proposed that they should be included in the 1927 naval program.

MURMAN COAST

A tendency to strengthen the Murman coast is appearing, caused by the fact that during the current year all the winter seaborne trade of the port of Leningrad passes through Murmansk, and it is possible that in the near future two submarines may be sent there secretly from the Baltic.

BLACK SEA FLEET

In 1925 three submarines were launched:

Shakhter (A. G. "23")----
Kommunist (A. G. "24")-- 375/467 tons, 13/11 knots speed.
Marksist (A. G. "25")----

In 1926 one submarine was launched, *Politrabotnik* (A. G. "26"). This is again in dock, as her trials were unsuccessful, but no work is being done on her.

Besides these there are five unfinished boats in Nikolaiev of the X, Y, Z class. Not more than two of these will be ready by 1927.

There are no other recently constructed submarines in the Black Sea fleet.

NOTE.—It is believed that this report gives an accurate account of the status of Russia's submarine forces. Russia is intending to concentrate on the building of submarines in the future, as this class of vessel is within her economic resources.—ED.

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3. Russian Navy.

[Source: German press]

The reports regarding the Russian Baltic and Black Sea fleets are very meager, but even so it can be seen from them that the most strenuous and energetic efforts are being made to repair the deficiencies of last year's training. The September maneuvers in the Baltic were the climax of this year's training, which comprised very extensive strategic problems which would undoubtedly point to a very high state of training. Special mention should be made of the scouting work which was carried out by the light forces in cooperation with aircraft. Furthermore, the cruises and night attacks, which were on a strictly military basis, as well as the fact that no accidents occurred during the target practice shows that the personnel and especially the officer corps were equal to the increased demands made on them, and that the remarks and speeches of leading personalities regarding the value of the fleet are to be taken more seriously than heretofore. Muklewitsch, Soff's successor as naval commissar, who was present at the maneuvers of the two fleets, was so satisfied with the performances that he stated "the Baltic fleet is at present stronger than all the fleets of the Baltic States together, including Germany, and the Russian Black Sea fleet is superior to all the fleets on that body of water."

In his report Muklewitsch lays special emphasis on the fact that practice with aircraft and torpedo-boat attacks took place in daylight and at night and that the meteorological conditions were often especially unfavorable. As regards the ship material, he stated that since being rebuilt their equipment was thoroughly modern in every respect. The following vessels took part in the maneuvers in the Black Sea: 3 destroyers, 4 torpedo boats, and 4 submarines, which covered a total distance of 810 miles. The report of the commander of the geodetic survey expedition in the polar regions shows that very energetic and expert work is being done there. This expedition comprises three ships—the steamer *Kupawa*, which surveyed the Murman coast (from Kildin to Teriherka) and finished the survey work on the coast of Rybatsch Peninsula to the Finnish

frontier and from Kildin to the small Cape Olenji; the steamer *Azimut*, which accomplished much in the investigation of currents in the White Sea; and finally the steamer *Murman*, which continued the extensive survey operations started last year on Nowaja Semlja Island. The report states further that the work was rendered very difficult during the summer owing to the heavy storms and fog and that the activities of the ships were greatly hindered owing to the ice flow.

Muklewitsch in his speeches greatly emphasizes the need of the new vessels, without, however, giving any details regarding the extent of the program or what types will be built. The four protected cruisers of the *Borodino* class which the Russian press stated were to be reconditioned have been scrapped long ago.

B. AERONAUTICAL

Commercial aviation activities in Soviet Russia.

This summer the Russian government is to undertake four long-distance flights to central Europe, southern Europe, Angora, and Teheran for the purpose of showing foreign countries the advances made by Russian aeronautics. For the first time the flag of the Soviets will be seen on the large European air ports and give evidence of the decisive will of the Russian people to further and foster aeronautics with energy and determination. In no other country in the world is aeronautical propaganda carried on so intensely as in Russia. Everywhere in the cities as well as in the villages attention is attracted to effective placards through the medium of which the Aviachim Society gathers its recruits, and one is categorically obliged to take an active part in the success of the great movement. The Aviachim, which numbers about 4,000,000 members is a consolidation of the Society of Friends of the Air Fleet (O. D. W. F.) and the Dobrochim. It has understood with great cleverness how to awaken the slumbering forces and to found a healthy basis for the development of Russian aircraft. It has received funds from all classes of the people with which it has acquired a very considerable number of planes. These planes are all of exclusive Russian production, built by Russian engineers, and operated by Russian pilots and mechanics. Every machine of the Aviachim represents therefore strong propaganda for Russian aeronautical technic, and it is thus possible for the Aviachim to float financially the four projected flights.

Russia's will to play an independent and noteworthy rôle in aeronautics is also voiced by her efforts to be independent of foreign aircraft and motor industries and also by the organization of glid-

ing-flight competitions, which last year attained such splendid results for Russian flyers in the Crimea.

In 1925 the Russian government undertook a very extensive distance flight, the result of which surpassed all expectations. Six planes started out from Moscow (two Junkers machines constructed in Russia) and covered the extremely difficult route over the unexplored wastes of Mongolia to China. Five of them arrived in Pekin, only one being lost, a break occurring just outside the walls of the Chinese capital. Four of the successful planes were built in Russia; two of them, those which later flew to Tokyo, were equipped with Russian motors.

The plan for the impending flight is as follows: From Moscow over Tiflis and Baku to Teheran (pilot, Moissejeff); from Moscow over Kharkov and Sevastopol (pilot, Mejraub). One interesting point in the latter is the crossing of the Black Sea, which means a 215-mile nonstop flight. The pilots Gromoff and Schebanoff will visit central Europe, the former taking the following route: Moscow–Konigsberg–Berlin–Paris–Rome–Vienna–Prague–Warsaw–Moscow. Schebanoff, whose route is to be Moscow–Berlin–Frankfort on the Main–Paris–Vienna–Warsaw–Moscow, has already been in Berlin.

These flights bear the character of visits to return those of other foreign planes in Russia.

The Aviachim does not carry out a regular air service. This is in charge of three companies in Russia—the Dobrolot, the Ukrwosduchputj, and the Deruluft (German-Russian Air Traffic Co.). During the year 1925 these companies covered 592,000 miles and carried 7,023 passengers and over 85 tons of freight. When these results are compared with those of the German air service, which has a front rank in international service as regards organization and intensity (2,180,000 miles covered and 48,184 passengers during the six months of the service), it will be seen that the Russian air service has made an extremely favorable beginning.

The Dobrolet has its field of activity in central Asia. Here it has the lines Kagan (formerly Nowoja Buchara)–Chiwa–Taschaus (406 miles) and Kagan–Termes–Dueschambe (454 miles). Four times a week, Monday, Tuesday, Thursday, and Saturday, the planes leave Kagan at sunrise for Taschaus or Dueschambe, an intermediary landing is made in Chiwa or Termes, and in the afternoon the planes arrive at their destination. The flight starts in the opposite direction at evening, the night is spent in Chiwa or Termes, and the flight continued the next morning at sunrise toward Kagan. In 1925, 261,000 miles were covered over this route. One noteworthy point is that the Dobrolot also took charge in this district of the survey work and the combating of noxious agents, two provinces in which there is great activity in Germany.

The Dobrolot uses Junkers planes exclusively. The service on the line Pischpek–Alma–Ata (formerly Wernyj) was stopped in 1926. The Dobrolot concluded an interesting agreement with the national commercial company regarding the transportation of tobacco to Krasnojarsk, Tscharkansk, and Budinka. Kamtchatka is also to be included in this route. Over the routes of the Dobrolot the planes represent a very great saving of time as compared with the obsolete ground traffic.

The air lines in the Ukrainian Republic are partly operated in conjunction with the Deruluft by the Ukrwosduchputj, which this year covered the following routes: Moscow–Orel–Kharkov–Artemovsk–Rostov–Minvody (975 miles in 12 hours) and Kharkov–Yekaterinoslav–Odessa (367 miles in 5½ hours) and Kharkov–Poltava–Kiev (268 hours in 4½ hours). There is a daily service over the first two lines, but the service to Kiev is only Wednesday and Friday, and then back on Tuesday and Thursday. The Persian service is the Junkers Co. line Baku–Pahlewi.

The companies mentioned are in charge of the domestic service, while the Deruluft has charge of the international connection with European countries. The Deruluft was formed in 1922 and has experienced a most splendid development. The route Konigsberg–Kovno–Smolensk–Moscow is flown with Fokker-Grulich planes, connecting with the night-flight route of the Luft–Hansa starting from Berlin; the flight time from Berlin to Moscow amounts to 15 hours as compared with the 65 hours by railroad.

This route was first covered by a Russian airplane on the occasion of Schebanoff's flight. The official character of the undertaking is evidenced by the fact that on board the *P.M. 1* (Schebanoff's plane) was the chief inspector of the civil air fleet of the soviet republic, Wischneff.

This long-distance flight project will undoubtedly contribute much to the establishment of commercial aircraft connections between Russia and western Europe. The visit of this plane is to be especially welcomed owing to the air routes to the Far East, which must pass exclusively over Russian territory, as it is an evidence of the Russian aeronautical initiative.

Schebanoff's plane is a Saemenof model built in Moscow at the government factory. It is a commercial biplane; the hull has an elliptical cross section and is built of ply wood. The pilot's and mechanic's seats are behind the motor bulkhead under the front edge of the upper wing. The room for the passengers has six seats, wireless equipment, and rear cargo room. The heating of the passenger room is effected by exhaust gas; the ventilation is effected by double Venturi tubes. The current for lighting, wireless, and instruments is drawn from the motor. The motive power in

the front part of the hull is a 250-horsepower Maybach motor in Koltjugaluminum casing (Koltjugaluminum is the Russian light metal of the Koltjugino works); Russian wooden air-propellers with hub bonnet. Russian Lamblin radiator. The cells have rectangular carrying surfaces, rounded off elliptically. Span and chord of the upper wing are considerably greater than those of the lower wing. Plane has two well-covered diagonal (48′) I struts; stiffening by profile wires with drop-shaped covering of the points of intersection: large, well-formed diagonal rudder, without slit except on upper wing; carrying surfaces spanned with fabric. The guiding surfaces are of the ordinary form: altitude fin adjustable.

NOTE.—See January BULLETIN for further notes on Russian long-distance flights. The soviet government is undoubtedly making efforts to produce an efficient, commercial air service, especially toward China and India and the Caucasus.—ED.

C. MISCELLANEOUS

1. Summary of the strength of Russia.

The following, prepared by M. I. D., is a summary to their estimate of Russia's strength and position to-day:

The soviet army is as large as any army in Europe.

It is not as well trained as the army of any other great power.

On the defensive it is strong, on account of its great numbers, its large cavalry, and the great distances of Russia. A sustained offensive is impossible because the poor economic condition of Russia will not permit the manufacture or procurement of the necessary supplies.

The soviet navy is negligible. It will be years before it becomes an international factor.

Russia can win a war against any combination of border States which may form against her, if they are unaided by the great powers.

The soviet leaders will not risk their hold on the country by engaging in an aggressive war on any one at present unless a very favorable opportunity occurs to retake Bessarabia.

A coup d'état on the part of the old nobility is at present out of the question.

As a final estimate it may be stated that it will take a major effort on the part of any one great power to defeat the soviet union now, and if her economic and military recovering continues at the present rate in a few years she will be a military power of the first order.

2. Report of Tchitcherin's visit to Berlin.

[Source: German press]

Tchitcherin took advantage of his recent visit to Berlin to inform a larger circle regarding Russia's foreign policy. Tchitcherin stated that the relations between Soviet Russia and Germany had reached a firmer basis since last year, due both to the economic treaty and to the credit agreement which would guarantee a firm foundation for future relations. The peoples' commissar further stated that "the bond of friendship which unites us with Germany has already become so strong that I place every confidence in it." It is also remarkable how Tchitcherin expressed the antagonism and opposition to England. He said that Moscow traced the hand of English agents both in the west and in the east. England is making every effort to encompass Russia, but the latter is successfully combating this by concluding treaties with her western neighbors. When such a clever diplomat as Tchitcherin, who understands so well how to weigh his words carefully, gives such clear expression to his opinion regarding the relations existing between Russia and England, one can only conclude that Russia sees no possibility of a compromise with England, perhaps does not even desire such a compromise.

The certainty, however, with which Russia sees the inevitableness of a final struggle with England is clearly expressed through the efforts of her foreign minister to cement more or less active friendships with all other countries. He observes great caution in discussing Poland. He remembers Pilsudski's great anti-Russian feeling of old and apparently believes that this can be neutralized through proper behavior on the part of Germany, so long as Pilsudski remains at the helm. Russia will never pursue anything but a peaceable and neighborly policy toward Poland, but will remain the implacable enemy of a Polish protectorate over the former Russian border states.

Tchitcherin already sees the victory of the South China Republic. He stated that Russia is delighted over the growth of the Kuo-Min-Tang democracy, between which and the Soviets there is a strong bond of friendship. In conclusion, Tchitcherin stated that on the whole the international situation of the Soviet Union has grown very much more secure in spite of all the hostility.

NOTE.—Tchitcherin is the Soviet foreign minister. Russian animosity to Great Britain is nothing new: it was a policy of the czars. To-day it is working in the Baltic, in the Near East, on the frontiers of India, and in China. It is based upon a fundamental clash of political and economic interests, largely determined by geographical factors. Its most visible indications are seen to-day in China. Attention is invited to the special article in the January BULLETIN entitled "Naval strategic principles of the weaker sea powers" for the naval aspect of this conflict of interests.—ED.

31605—27——7

SPAIN

A. NAVAL

1. Distribution of Spanish naval forces for 1927.

A royal decree appeared on the Gaceta recently fixing the status of the Spanish Navy for the calendar year 1927.

The distribution of the naval forces follow:

(*a*) Training squadron:

Battleships *Jaime I* and *Alfonso XIII* (15,400 tons, built in 1914).

Light cruisers *Reina Victoria Eugenia* (6,100 tons), *Mendaz Núnez* (5,200 tons), *Blas de Lazo* (5,200 tons, built in 1920–1922).

Destroyers *Alsedo*, *Velasco*, and *Lazaga* (1,325 tons, built in 1924).

The light cruisers *Principe Alfonso* and *Almirante Cervera* recently launched will be delivered to the navy during 1927 and will also form part of the training squadron. (These are of 7,800 tons.)

(*b*) Naval forces of North Africa:

Cruisers *Princess de Asturias*, *Extremadura* (obsolete).

Torpedo boats *Nos. 14* and *15* (obsolete).

Gunboat *Bonifaz* (800 tons, built in 1911).

Eight cutters.

Two tugs.

(*c*) Ships for commissions in Africa, Canary Islands, Balearic Islands, and jurisdictional waters:

Destroyers *Proserpina*, *Bustamanta*, *Gadarso*, *Villamil* (all about 500 tons).

Torpedo boats *Nos. 1*, *2*, *3*, *4*, *5*, *6*, *7*, *8*, *9*, *10*, *11*, *12*, *13*, *16*, *17*, *18*, *19*, *20*, *21*, *22* (obsolete).

Seven gunboats.

Thirteen cutters.

Several other small craft.

(*d*) Submarine divisions:

At Ferrol—Submarines *Isaac Peral* and *B–1* (about 500/800 tons, built in 1916 and 1921).

At Mahon—Submarines *A–1* and *A–2* (260/380 tons, built in 1916).

Training division at Cartagena—

Submarines *A–3*, *B–2*, *B–3*, *B–4*, *B–5*, *B–6* (260–500/380–800 tons, built in 1915–1923).

Submarine salvage ship *Kanguro*.

Submarine *C–1* (950/1,250 tons), which will be delivered to the navy during 1927, will be attached to the training division.

(*e*) Ships for special services:
Cruisers *Cataluna*, *Carlos V*, and *Rio de la Plata* (obsolete).
School ships *Galatea* and *Giralda*.
Two war transports.
Airplane tender *Dedalo*.
Five other small ships.

The school ship under construction, *J. Sebastián Elcano*, will be delivered to the navy in 1927.

NOTE.—This accounts for practically all of Spain's naval forces except her six new 1,800-ton flotilla leaders, built or building.—ED.

2. *Naval personnel strength.*

	Sea service (line officers)	Shore service
Captain general of the navy	1	
Admirals	5	
Vice admirals	8	
Rear admirals	10	
Captains	27	21
Commanders	63	23
Lieutenant commanders	112	63
Lieutenants	257	
Ensigns	(1)	

[1] Indeterminate.

There exists several corps of specialists and auxiliary personnel, the authorized strength of which follows:

Astronomers (to be abolished)	13
File clerks (to be abolished)	10
Navy chartographers	10
Boatswains	318
Radiotelegraphers	52
Master gunners	336
Harbor watchmen	276
Machinists (second class)	745
Medical assistants	180
Naval clerks	251
Torpedo specialists	143
Semaphore watchmen	102
Divers	35

The total commissioned navy strength as indicated by the latest promotion list follows:

	Sea service	Shore service	Auxiliary reserve
Captain general of the navy	1	----------	----------
Admirals	5	----------	----------
Vice admirals	8	----------	----------
Rear admirals	12	----------	----------
Captains	27	28	----------
Commanders	65	41	----------
Lieutenant commanders	119	90	----------
Lieutenants	128	14	----------
Lieutenants (junior grade)	130	2	41
Ensigns	44	----------	----------
Total	539	175	41

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In general: Bureaus of the Navy Department; all force commanders; all commanding officers of capital ships, the larger patrols, destroyers, and submarines

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GOVERNMENT PRINTING OFFICE
WASHINGTON
1927

FOR CONVENIENCE IN ROUTING

Officer	Initials	Date received	Date forwarded
Captain			
Executive Officer			
Gunnery Officer			
Navigation Officer			
First Lieutenant			
Engineer Officer			
Asst. F. C. Officer			
Communication Officer			
Medical Officer			
Supply Officer			
First Division Officer			
Second Division Officer			
Third Division Officer			
Fourth Division Officer			
Fifth Division Officer			
Sixth Division Officer			
Marine Officer			
"V" Division Officer			
"A" Division Officer			
"B" Division Officer			
"E" Division Officer			
"M" Division Officer			
"N" Division Officer			
"R" Division Officer			
Radio Officer			

The material for the BULLETIN is largely derived from service sources and its interest and value are correspondingly dependent upon the number and character of the reports received by the Office of Naval Intelligence from our own officers. In this connection the observations of officers afloat are of great value, particularly if the reports rendered are drawn up in accordance with existing intelligence instructions.

While political and economic information is undoubtedly of much use, the collection of military information should come first in the intelligence work of cruising ships.

NOTICE

The contents of this number of the BULLETIN are based upon information received in the Office of Naval Intelligence between January 28 and February 20, inclusive.

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HER MAJESTY'S SHIP, "SUMATRA"

CONFIDENTIAL

O. N. I. MONTHLY INFORMATION BULLETIN

VOL. IX MARCH, 1927 No. 9

ARGENTINA

A. NAVAL

1. Proposed purchase of vessels.

Until recently, the subject of the purchase of naval vessels by the Argentina Government has been at a standstill. A short time ago the board appointed by the Minister of Marine delivered their report and recommendation, which is now being examined. Nothing is known regarding the situation other than what has appeared in the newspapers, stating that the vessels will probably be purchased in England and Italy.

It seems probable that part of the delay in taking action regarding the new units was due to the desire of the minister to have a personal interview with one of the members of the naval mission in Europe. Commander Pastor, of the Argentina Navy, who has been the intimate associate of the president of the mission, arrived in the Argentine recently with further details regarding the methods employed by the mission abroad.

NOTE.—The naval mission mentioned is in Europe arranging for the construction of naval vessels as authorized under the recent act of the Argentina Congress. The authorization allows for three cruisers, six destroyers, six submarines, and various river craft. (See November BULLETIN for details.) As reported in the January BULLETIN, this mission has met opposition within the government at home and the question has arisen of awarding at least some of the submarine contracts to American firms.—ED.

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2. Channels and canals to be dredged.

The Ministry of Public Works has authorized the dredging of channels and canals at the naval base, Rio de la Plata, and also the reconstruction of several docks. The work will be undertaken very shortly, with the sum of 200,000 pesos (approximately $80,000)

immediately available. The total sum involved is approximately 1,800,000 pesos ($720,000).

NOTE. The base at Rio de la Plata is at Rio Santiago, the seaport of La Plata, and is about 35 miles from Buenos Aires. It is the base of the reserve and the destroyer divisions. It is also the seat of the naval academy, the torpedo school, and the electrician's school. It is one of the three major bases of the Argentina Navy. Appropriations for its improvement were made in the extensive naval bill outlined in the December BULLETIN.—ED.

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3. *Target practice of the "Rivadavia."*

Under date of January 24, La Prensa publishes what they consider an analysis of the results of the target practice of the battleship *Rivadavia*. The article calls attention to the fact that they noted in their issue shortly after the practice that the failure of the *Rivadavia* to make a good showing was due to foreign matériel.

Each salvo is taken in order and comments made regarding the range and the distance from the target of the splash. The paper considers that the spotter gave the necessary instructions to insure hitting the target but that in no case except the last salvo was he successful. Also it is stated that the firing was not regular and that but 55 charges were fired instead of 72.

The Prensa ends the article asking the following questions, which they permit to remain unanswered:

(*a*) Is the director system installed in North America defective?

(*b*) Does it work badly or have the guns defective ballistics?

The Prensa makes a note regarding the failure of the matériel and works up the article in such a way as to leave a strong inference in the mind of the reader that the repairs completed in the United States were not satisfactory. The Prensa takes particular delight in printing articles of an anti-American character and has given wide publicity to the present Mexican-Nicaraguan situation.

To make a statement of the character mentioned above is to give an entirely false impression, which is evidently the wish of the editor. Any failure on the part of the *Rivadavia* to make a brilliant showing at the target practice, which was evidently the expectation of the naval authorities, the Congressional committee, and the newspapers, was due to lack of foresight in not having sufficient air compressors in operation and to lack of experience on the part of the officers and crew.

NOTE.—See the January BULLETIN for details of the *Rivadavia's practice*. The Prensa is the oldest and probably the most influential paper in Argentina. It has one of the most complete news services in the world. It is very nationalistic and occasionally very critical of the United States.—ED.

B. AERONAUTICAL

1. Curtiss Airplane Co.

The Curtiss airplane representative in the Argentine, who has been conducting an airplane school of that company in San Fernando, Province of Buenos Aires, has stated that owing to a lack of interest in commercial aviation in the Argentine the school has been disbanded, and he is returning to the United States in April of 1927.

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2. Proposed dirigible communication, Spain-Argentina.

[Source: English press in Buenos Aires]

There is evidently going to be competition for the carrying of Argentina's mails and passengers by the air route. The Hispano-German combine is building a monster airship for service between Buenos Aires and Seville, and now M. Pierre Latecoeur, the director of the famous French aviation company which bears his name, is visiting Buenos Aires for the purpose of negotiating with the Argentine authorities for the extension of the Franco-Moroccan air services to this country. M. Latecoeur's plan is a simple one, and consists of a combination of aeroplane and steamship which would, he claims make it possible to travel from France to Buenos Aires in seven days or so—in other words, cutting the present schedule by about 10 days. The itinerary proposed is as follows: France to Casablanca (1,150 miles), 13 hours; Casablanca to St. Louis, Senegal (1,771 miles), 36 hours; St. Louis to the Cape Verde (497 miles), 3½ hours; Cape Verde to Fernando Noronha (1,367 miles), by steamer in three days; Fernando Noronha to Recife (403 miles), 5 hours; Recife to Rio de Janeiro (1,212 miles), 14 hours; Rio de Janeiro to Buenos Aires (1,305 miles), 15 hours. It is interesting to note that the route laid down above is practically the same as that advocated some seven or eight years ago by the English aviation journal, The Aeroplane. The seed evidently fell on stony ground, for we never heard of any British concern negotiating in this part of the world, which seems a pity, for if the Spaniards and French desire to come here it must be because there is money to be made, they not being philanthropists, and we should like to see some of the cash go to the old country. It is badly needed there, and British pilots and British "busses" are known to be at least as good as any in the world.

NOTE.—The dirigible for the Spanish-German line to the Argentine is now building at Friedrichshafen, and will be known as the *LZ–127*. It will carry 15 tons of cargo and have a cruising radius of 6,250 miles. It will be ready for flight in 1929. Late information on the above states that an agreement has been signed between the Argentina Government and the Latecoeur Air Transport Co. for the mail service between Europe and Argentina. The agreement is for 10 years, and the first mails are to be despatched September next.—ED.

C. MISCELLANEOUS

1. A Monroe doctrine editorial.

[Source: Buenos Aires "Standard"]

In our edition of October 9 ultimo we noted briefly the address delivered before the faculty of law by Dr. Orzabal Quintana upon the Monroe doctrine. By the last mail we received the following from Mr. Mallet-Prevost, member of a legal firm on Broadway, New York. Mr. Mallet-Prevost's note reads:

My attention has been called to an article in your issue of October 9 relative to a lecture by Dr. Orzabal Quintana on the subject of the Monroe doctrine. Although I have no copy of that lecture, it seems to me quite clear from your article that the distinguished jurist wholly misunderstands the American attitude on that subject, and I am therefore sending him by this mail a copy of a brief address which I made some time ago on the same subject. Thinking that it may possibly interest you, I take the liberty of enclosing another copy of the same address herewith.

We do not know what Doctor Quintana thinks of the address which he has doubtless received. We may know in time, but to us the pamphlet is what we may call a very able reproduction of the average American's argument or defence of the doctrine. But we may be permitted to point out there are just as many views of the doctrine as there are nations connected with its history, its development, and actual practice. There was only one battle of Waterloo, but there are more accounts of that historical episode than there were nations engaged actively on the field.

Mr. Mallet-Prevost's lecture maintains that it is America alone that the Latin-American Republics have to thank for their immunity from interference during and since their emancipation from Spanish rule. According to him, the defeat of the Holy Alliance was accomplished by America at the time Mr. Monroe enunciated his famous warning. Not a word about England's share in the honors or in the victory; yet, we may say for the edification of New York, there are here in Buenos Aires monuments to George Canning, and another is about to be raised. For, as Minister of Foreign Affairs at the time, Canning, violently differing from the European powers—Russia, Prussia, Austria, France, and, of course, Spain—denounced the Holy Alliance. At that time America's fleet and army were not what they are to-day. But President Monroe was able to utter his warning. Why? Because he had from London assurances that if he adopted that policy he would have the naval power of England to sustain America's arms. Canning, who declared the Holy Alliance to be "holy in name only," gave Europe to understand that no interference in the newly established democracies of the western world

would be tolerated, and he meant it. That is why his name is held in such regard locally.

In Argentina we have for many years been endeavoring to think not of Britain or of the United States individually, but of an Anglo-Saxon unity. In a country outside the Empire and away from the influence of Washington, we have tried to think of the two nations as one in language, in traditions, in ideals and aspirations. We think of the wider unity more than of the narrower national interests. Situated as we are, Mr. Mallet-Prevost would, we think, do more or less what we are doing and have been doing for more than 60 years.

Down here we are not ignorant of what Americans are thinking and doing "up yonder." It would be well for Anglo-Saxon interests, present and future, were the people of the United States "put wise" as to what Latin America is thinking and saying of America. It was for that reason principally that we published the Editor's Table note to which our correspondent's "attention was drawn."

Doctor Quintana's lecture before the faculty of law was not an improvised affair. It was carefully thought out by a man trained to think for presentation to a thinking audience. And the gist of it was: "We are given to understand by America that she reserves the right to apply to Argentina, on a matter peculiar to this Republic, a doctrine which we are not permitted to appreciate or understand."

If this statement of Argentina's case is even only in part true, how can America justify her position? How would America like it were Argentina to propound a doctrine and impose it upon the Anglo-Saxon States? We have only to ask the question to see the answer blazing from the Rio Grande to the Arctic Circle.

As originally set forth, the doctrine was beneficent, magnanimous, and courageous to a degree. But since it was promulgated by Mr. Monroe it has been modified several times, and the more America improved it the worse it became—in the eyes of the Latin republics. It may be said that after its centenary celebrations the doctrine was such that even its father would hardly recognize it. As an American writer and authority, Prof. John H. Latane, puts it: "As long as the Monroe doctrine was merely a benevolent protection which Latin-American States could invoke * * * it was regarded with favor. But the Roosevelt doctrine or version—that if the American Government was to continue to protest Latin-American States against European intervention, it had a right to exercise an international power over them and to see that they refrained from conduct likely to provoke intervention—was quite a different thing; it raised a storm of criticism and opposition.

We have not the space necessary to set out at length what the Latin-American States think of the Monroe doctrine as amended. But Washington has a reference library to which we refer our correspondent. He can find there what ex-President Bonilla, of Honduras, and the ex-President of Colombia, General Reyes, have, as representative Latin-American statesmen, said of American policy and the sordid motives behind it. We do not indorse these statements; we simply invoke them to corroborate Doctor Quintana and other jurists who say more or less what the ex-Presidents referred to have said and maintain. Let our correspondent look up the antecedents of the Nicaraguan revolution of 1909, which are the antecedents of the present trouble in that Republic. The allegation, supported by certain proofs, is that that revolution was promoted from Wall Street to secure the placing of an American loan. It is not good for Anglo-Saxon prestige that such charges should remain unanswered or unnoticed. It is not fair to the Anglo-Saxon nations that the Latin-American Republics are forced to consider the Monroe doctrine and "dollar policy" as one and the same thing.

The American aviators, intent upon a Pan American flight, have decided to leave their cameras at home. This decision has been taken in view of the suspicion with which the nations to be flown over or through regard the "Johnny with his camera." It was objected by certain of the nations that the aviators might be spies, and that the trip might be nothing but an excuse for spotting the strong places which Uncle Sam would subsequently come along and bombard. It would be very sad were America to find out the weakness of, say Asuncion, and send a fleet to blow up its fortifications! The Pan American idea must be rather weak since such suspicions are evident.

NOTE.—The Standard is an English owned and controlled daily with a wide circulation among Englishmen in the Argentine. Between the lines of the above can be read the result of apparently intense English penetration into the Argentine to the detriment of the United States. Other evidences of this English activity in the Argentine are seen in the recent controversy regarding the award of contracts for naval vessels, in the hint in the preceding article regarding English air transport routes to the Argentine, and in the extensive English shipping to the Argentine. In 1926, according to recent figures, 3,950,886 tons of British shipping arrived in the Argentine to 549,912 tons of the United States. This amounted in England's case to 45 per cent and in ours to 6 per cent of the total.

The view regarding the Monroe doctrine expressed above is one which is, unfortunately, all too common throughout Latin America. The "modifications" of the doctrine refer to President Polk's pronouncement in 1848, Mr. Olney's statement to Lord Salisbury during the Venezuela controversy, and our actions in Panama, San Domingo, Haiti, Mexico, and Nicaragua.—ED.

AUSTRIA

A. AERONAUTICAL

1. Opportunities for American aeronautical material.

No foreign airplane manufacturers are represented in Austria at the present time.

No sales of airplanes have been made to Austrian users during 1925–26.

According to information obtained from experts, the commercial lines now in operation or contemplated will not offer a market for aircrafts or parts of aircrafts in the near future, because these lines are controlled by foreign airplane manufacturing interests.

The Franco-Roumaine (Paris-Balkans) use Spad, Henri Portez, and Farman planes; the Oesterreichische Luftverkehrs-A. G., Aerolot, and Transadriatica use Junkers planes; the Lufthansa and the Hungarian line use Junkers and Fokker planes. Two types are used, the smaller having a carrying capacity of 5, the larger a capacity of 10 persons.

The Oesterreichische Luftverkehrs-Aktien Gesellschaft belongs to the Europa concern. Its 6-seater Junkers planes have one 185-horsepower B. M. W. motor. The 12-seater planes have three of these motors.

The Compagnies Internationale de Navigation Aérienne uses French biplanes—Bleriot-Spad and Portez planes.

The Ungarische Luftverkehrs-Aktien Gesellschaft uses Fokker F–III planes with 185-horsepower B. M. W. motors.

A. G. Polska Linja Lodnicza Aerolot uses 6-seater 185-horsepower Junkers planes.

Süddeutsche Aero-Lloyd A. G. uses Fokker F–III and Dornier Komet planes.

It is apparent that the use of aircraft for commercial purposes is increasing in Austria, an evidence of which is the establishment last summer of a line to Venice, which is understood to have been operating on a daily schedule, in addition to the other lines likewise referred to under above.

ENGINES AND MISCELLANEOUS SUPPLIES

At the present time the Oesterreichische Luftverkehrs-A. G. is the only organization in Austria which might possibly be interested in American aircraft engines; such interest seems rather unlikely, however, owing to the intimate relations that exist between the Austrian company and the Junkers concern.

No American aircraft engines are now in use in Austria.

The most popular motor used on Fokkers and Junkers planes is the German Bayrische Motoren-Werke 230-horsepower water-cooled 6-cylinder motor.

There is some interest for American aircraft instruments and propellers, perhaps also for parachutes and cables. Specifications and prices of American equipment are not known in Austria, and it is therefore difficult to form an opinion whether American equipment can compete with European products.

Aviation in Austria is now practically confined to the commercial air lines. Flying as a sport is almost totally neglected and military flying activities are of small proportion. Hitherto the Austrian Government, for financial and other reasons, has refrained from subsidizing commercial aviation; during the current year, however, the government proposes to spend about $143,000, particularly for subsidizing the commercial lines, and a further sum of $86,000 for the development of air ports. The lack of subsidies has perhaps been one of the main reasons why commercial aviation in Austria is largely in the hands of foreign companies.

NOTE.—The comparatively inactive state of Austrian aeronautics is due partially to the economic strain which that country has endured and partially to the terms of the treaty of St. Germain, which ended the war for Austria. It can be seen from the above that Germany and France are the most influential foreign nations in what aeronautical activity there is.—ED.

BELGIUM

A. MISCELLANEOUS

1. Foreign policies and relations.

[Source: M. I. D.]

In general it may be said that the aim of Belgium's foreign policy since the war has been to obtain an agreement which would enable her people to feel secure from another brutal attack by Germany. To this end her statesmen have labored for a better understanding between England and France. While fearing and hating Germany, she is ready to get down to work with her, although neither forgiving nor forgetting the years 1914–1918. She knows that her geographical position makes her bound to suffer in any quarrel involving her larger neighbors, and so she has consistently worked to bring about an accord in western Europe. She helped draft the Geneva protocol and was disappointed when it failed of ratification. It is in a measure due to her persistency in furthering it that there exists to-day the

Locarno accords, in the drawing up of which her representatives played so large a part. The Locarno treaties were ratified by the Chamber of Deputies and Senate in January and March, 1926, respectively.

Belgium has, in addition, a military defensive alliance with France, which, however, does not oblige her to assist France should the latter be called on to protect Poland or Czechoslovakia from Germany.

The Belgian people like and admire the French, and they dislike the Dutch. Even the Flemish are included in this dislike of the Hollanders. According to the Belgians, Holland looks on them as a rebellious and incorrigible offshoot of her own whom she can not chastise but for whom she will make none but the most necessary concessions and all the trouble and inconvenience she can. Commercial conventions between the two countries are a sparring match in which each tries to seize all the advantages it can and to grant to the other as begrudgingly as possible the very minimum it can get off with.

On April 3, 1925, a treaty was signed with Holland dealing principally with the regulations of the River Scheldt, which seems to satisfy neither country. The "outs" in each country claim that the "ins" sacrificed the vital interests of the native land. For nearly 300 years control of the Scheldt River has been a bone of contention between the two countries. The recent treaty establishes an international commission for the maintenance of the Scheldt channels and omits two points of contention: the question of jurisdiction over the Willingen Channel and the matter of the defense of Limburg. This treaty has been approved by Belgium and by one of the two chambers in Holland.

For a thousand years Belgium has been and continues to be a vital and sensitive spot in the world's political situation. Too small and weak to stand alone, she must continue to form alliances for her protection. While hating war, she finds herself threatened or actually involved in every major struggle in Europe. Although her people are divided by the language chasm, there is a spirit of unity, a patriotism—neither Walloon nor Flemish, but Belgian—which was most clearly demonstrated in August, 1914. It is this Belgian spirit of unity which, combatting strenuously for full independence, has now shaken off the neutrality imposed on her in 1839, and which, when the present unrest resulting from the war shall have passed, will enable her to exercise a moral influence in the councils of the nations of the world.

NOTE.—In connection with the above, attention is invited to a recent and very excellent book regarding the all-important European question of security—namely, "Information on the Problem of Security (1919–1926)," by J. W. Wheeler-Bennett. George Allen and Unwin (Ltd.), London.—ED.

CHILE

A. NAVAL

1. Naval construction.

The Santiago daily, El Mercurio, recently carried the following articles:

CONSTRUCTION OF SUBMARINES BY PERU

We have succeeded in learning from well-informed circles of the navy that the 15 submarines which Peru will construct within a short time to increase its means of naval warfare will be of the same type as the *R–1*—of about 700 tons and with a radius of action of more than 8,000 miles.

These ships can easily make the journey from Callao to Punta Arenas and return without stopping for fuel anywhere enroute.

In the navy various comments are made regarding the warlike preparations of our adversary of the north.

NEW NAVAL ACQUIREMENTS

There will be opened this month in London public bids for the construction of six big destroyers for Chile.

Some time ago the government asked public bids through the medium of the Chilean naval mission in London for the construction of half a dozen destroyers of 1,300 tons, more or less. We are informed that said bids will be opened in the British capital this month.

It is known that numerous bids have been submitted—English, French, Italian, Japanese, Swiss, etc.

The destroyers to be constructed will be of high speed and equipped with long-range guns, and will combine all the attributes necessary for this class of ship.

With regard to the article about six new destroyers for the Chilean Navy, it is possible that bids have been requested and submitted, but it is practically certain that Congress has not yet specifically authorized their construction.

It is believed that this step may be accounted for in one of two ways—either it is a preliminary executive move in order to lay full details as to cost before the Congress, or there is a secret understanding with the Congress that part of the 13,000,000-pound-sterling loan arranged with Kinnicut, Kessel & Co., will be diverted from its purpose.

The Chilean press is apparently trying to stir up the people by such articles as the one referring to 15 new submarines for Peru. According to the press of Chile, Peru has now 4 under contract, 2 already delivered, and with 15 more would have a flotilla of 21

modern vessels. This, if true, would naturally cause counterconstruction here.

NOTE.—The *R–1* referred to above is one of two boats recently completed in the United States for Peru. They are of 800 tons surface displacement, a surface speed of 14 knots, and closely resemble our *S–2* type. The Mercurio is one of the largest and most influential papers of Santiago. The above is a recent example of the animosity existing between Peru and Chile ingendered by the War of the Pacific and carried down in the Tacna-Arica dispute. The report of 15 new submarines is undoubtedly grossly exaggerated. It is doubtful if any more at all are contemplated by Peru. Rumors of an increase in Chilean armament have been current for some time. Since the above article was written, the press of the United States has announced that Chile has acquired six new destroyers in England—probably meaning that contracts have been let for this construction. As far as is known, the United States was not asked to bid on these six vessels. In Chile, as in the Argentine, the United States seems to have lost what Great Britain has gained. Public opinion in Chile is none too favorably inclined toward the United States, due to the Tacna-Arica dispute and to our interpretation of the Monroe Doctrine.—ED.

CHINA

A. MISCELLANEOUS

1. The Kirin-Hailungcheng Railway.

The following is an article taken from the Japan Advertiser, entitled "Manchurian Railways," in which the effect of the construction of a railway from Kirin City to Hailungcheng, together with Chinese railway policy in Manchuria, are discussed.

This is a very interesting article, but it would appear that the writer of the article has either confused Hailungcheng with Heilungkiang, the northernmost of the three eastern Provinces, or has given an exaggerated importance to the projected stretch of less than 150 miles of railway to connect Hailungcheng, in Fengtien Province, with Kirin City, the capital of Kirin Province. It is difficult to agree that the construction of the railway from Hailung to Kirin City is of the "most direct interest to Japan" or that it will "make Manchurians independent of the Japanese-controlled South Manchuria Railway and, with the same stroke, dash from the hands of the Japanese the economic control they now exercise over a large part of South Manchuria." The statement that "a Kirin-Hailungcheng Railway would make possible a through train service from the Yangtze to the Sungari over an all-Chinese line" has no significance other than to emphasize the distance, for Kirin City is on the southern branch of the Sungari River, which branch is not navigated by steamers, nor would the Kirin-Hailungcheng Railway "enable the Chinese Government railways to enter into traffic agreement with

the Chinese Eastern, sidetracking the Japanese line," for the reason that the nearest Chinese Eastern station to the Kirin-Hailungcheng station will be 80 miles distant (from Kirin City to Changchun), and connected with it by the Kirin-Changchun Railway.

At present the Japanese are providing funds for the railway being built eastward from Kirin City to Tunhua. This railway (assuming it is not directed toward a port on the Korean coast) will bring traffic to Kirin City, thence over the Kirin-Changchun Railway to Changchun, the northern terminus of the South Manchuria Railway. With the construction of the railway from Hailungcheng to Kirin City, it would be possible for freight from the eastern and northern part of Kirin Province to be brought to Kirin City and then shipped over the Mukden-Hailung-Kirin Railway. But shippers will perforce consider the ultimate destination for a large part of the freight; it would necessarily be a seaport, either Newchwang or Dairen, in which case the produce would in any event be carried finally by the South Manchuria Railway. A shipper would have the choice of shipping freight to Mukden, there to be transhipped to the Japanese Railway. The South Manchuria Railway can not suffer economically by the construction of the railway from Hailungcheng to Kirin City.

While it is true that the Mukden-Hailungcheng Railway could bring considerable cargo to a Chinese port on the Gulf of Liaotung, the fact remains that there is no port yet worthy of the name, nor will there be for years to come any port which will rival Dairen and its most modern and efficient port facilities. The linking of Hailungcheng with Kirin City has no special bearing on the subject of Hulutao, the port which Chinese say can be made a rival of Dairen.

As to any relations with the Chinese Eastern Railway, while it would be possible to bring freight from North Manchuria to the Mukden-Hailungcheng Railway via Changchun, thence to Kirin City over the Kirin-Changchun Railway, and then to the Mukden-Hailung-Kirin Railway, this would involve two transhipments at Mukden, for the destination of practically all the cargo originating on the Chinese Eastern Railway and now handed over to the South Manchuria Railway at Changchun is Dairen.

The importance of the Mukden-Hailungcheng-Kirin Railway to the Chinese should not be minimized, but it is a case where the railway may be exceedingly important to the Chinese without in any way harming Japanese interests, and also where the railway will not utterly relieve the Chinese of dependence on the South Manchuria Railway. It will yield the Chinese owners (provincial government and merchants) a profit and at the same time bring to the Japanese an immense amount of freight. There is a large amount of

agricultural products brought to the various stations in Manchuria which is not shipped immediately to Dairen, and thus such cargo may be also brought to Mukden over the new railway, giving it considerable freight. Another phase is that of the transportation of Chinese troops. The South Manchuria Railway demands and receives payment for carrying Chinese soldiers, but it is not believed that Marshal Chang would pay the Mukden-Hailungcheng-Kirin Railway for the same service.

There is room for more railways in Manchuria; the South Manchuria Railway, with the position that Dairen has obtained, will not be injured one iota by the construction of new railways in Manchuria, but will benefit thereby to the fullest extent. Japanese opposition has not been declared to be based on fear of any harm to the revenue of the South Manchuria Railway, but Japan's interest in this new railway is based on other considerations. No railway construction in Manchuria will divest the South Manchuria Railway and Dairen of their importance as the arterial system of communication in Manchuria.

MANCHURIAN RAILWAYS

Civil Governor Mo of Mukden, recently granted an interview, dealing in general terms with the railroad situation in his province, in the course of which he made two important declarations. One was that hereafter Manchurian railway lines will be constructed by Chinese with Chinese capital. The other statement dealt with the future of the Chinese Eastern line. In response to a query as to how great a share in the control and management of this line China would demand, his reply was: "We will take all we can get."

On the heels of this interview comes an announcement that heretofore secret plans for the construction of a line to connect Kirin and Hailungcheng have progressed to a point where the required capital is in sight. A "construction office" for the proposed line has actually been opened in Kirin.

News that the Chinese propose to build for themselves less than 200 miles of railway between two comparatively unimportant points on the map is not news that would interest the ordinary newspaper reader, while the report coupled with it to the effect that Japan is expected to file a protest against this domestic enterprise of the Manchurians is likely to be dismissed by the casual reader with the thought that Japan ought to mind her own business.

A brief study of the railway map of Manchuria, however, will show that this proposed short railway is something of the most direct interest to Japan. At the same time it is of the highest importance to Manchuria, as its construction will at one stroke make Manchurians independent of the Japanese-controlled South Manchurian Railway and, with the same stroke, dash from the hands of the Japanese the economic control they now exercise over a large part of South Manchuria. A Kirin-Hailungcheng railway would make possible a through train from the Yangtze to the Sungari over an all-Chinese line. It would enable the Chinese Government railways to enter into traffic agreements with the Chinese Eastern, sidetracking the Japanese line. It would deprive Japan of all profit from the investments made in the various lines built as feeders of the South Manchurian. It would enable Chang Tso-lin to proceed with his ambitious scheme of developing a port on the Gulf of Liaotung to

become a direct competitor for Dairen. Without the short link between Hailungcheng and Kirin none of these things is possible.

The Japanese protest, which Mr. Yoshizawa, the consul general at Mukden, is reported returning to Tokyo to urge the Foreign Office to present, will be based upon the fact that the building of this Kirin-Hailungcheng line would be in violation of the Sino-Japanese agreement of 1913, and also a violation of the terms of the Sino-Japanese loan contract of 1918. The first-named agreement provides for the construction by China with Japanese capital of certain railway lines—the Ssupingkai-Taonan line, now operating; a Kaiyuan-Hailungcheng line, and a connection between the Kirin-Changchun line and Taonan. It also specified that Japan must be consulted before any line between Kirin and Hailungcheng be built, this being the line China now proposes.

The 1918 agreement was signed when Viscount Goto was foreign minister. It gives the Japanese the first right to build certain lines, including the Kirin-Hailungcheng connection.

It is one of the ironies of the situation that the present plan of the Chinese to parallel and hamstring the Japanese South Manchurian system has been made possible through an act of the greatest courtesy by the South Manchurian management toward the Chinese, this being the permission given some two years ago to Chang Tso-lin to cross the South Manchurian leased right-of-way at Mukden with an extension of his Tientsin-Mukden line, which he desired to push on to Hailungcheng for the tapping of the coal-mining district there. Japan could have effectually blocked all the present railway ambitions of the Mukden overlord by refusing to permit his line to cross the South Manchurian, but to have done so would be to have created a precedent which the Soviet management of the Chinese Eastern could have evoked to prevent the then building Taonan-Anganchi line from crossing the Russian rails at Tsitsihar, and would have made perpetual the economic control now exercised by that road over a vast stretch of North Manchuria. Very likely the permission given to Chang Tso-lin to cross the Japanese line at Mukden was accorded as much to provide later embarrassment to the Russians as it was to oblige the Chinese. If so, Japan now knows what it means to be hoist by her own petard.

Chang Tso-lin's ambitions to be master in his own house, regardless of treaties, agreements, and loan provises, extends even further than the blow he now proposes to deal against the Japanese. A Rengo dispatch from Harbin, states that the Chinese director of the Chinese Eastern proposed to announce yesterday (the 18th) that Mukden will hold no further conferences with the Soviets regarding the terms of the joint Sino-Russian management of the line, but will proceed to take over the railroad for reorganization and management by Chinese, under the terms of the Soviet-Mukden agreement and the later Soviet-Chinese convention that confirmed it.

This is the next logical step for Chang Tso-lin to take. Even since he was obliged to oust the White Russian management of the line and restore the management to the Soviets (being forced to take this step through Russian pressure on his rear when he was fighting Wu Pei-fu in a life and death struggle at Shanhaikwan in 1924), Chang has been vindictively pressing the Red Russians out again. Bit by bit he has shorn them of power. By force he seized the reins of municipal administration in the Russian cities built along the line; he ejected the Russian supervision over the lands areas held by the railway; he assumed the policing of the railway zone. He left nothing to the Reds except the management of the railway itself, and now he proposes to take that over.

If he accomplishes this, along with the putting through of his proposed connecing link of steel between Kirin and Hailungcheng, he will control as

one working system 2,200 miles of railway in Manchuria and 690 miles of South Manchurian track will not only be overshadowed but can be effectually shut out of practically all the freightage as soon as some shipping point can be developed. Newchwang and Chinwang-tao are already available as points for diversion from Dairen, even if the new port Chang Tso-lin has planned between the two can not be made ready in the near future.

Japan is vitally interested in the uncovered plans of Chang Tso-lin. Not only are her vast investments in South Manchuria threatened, but her plans for developing Manchuria as a market for the exports and a source of her raw materials may all go glimmering.

Soviet Russia is vitally interested in the next move threatened by Chang Tso-lin at Harbin. The Chinese Eastern is a vital link in her trans-Siberian system, without which Vladivostok can not prosper or even have security.

Those many who have been looking to Manchuria as the place for the next major trouble will find plenty of reasons for further head shaking over the developments there at present.

[NOTE.—The railways of Manchuria of vital interest to China, Japan, and Russia, may almost be said to hold the key to peace or war as far as that area is concerned. The railway struggle centers chiefly between Russia and Japan and has been intense ever since the Witte régime in the former country. The branch line to Tsitsihar, which the Japanese recently built as an extension to their South Manchurian railway, has increased the friction between Russia and Japan over this question, because this branch increases the economic hold of Japan in Manchuria and lessens the military value of the Soviet-controlled Chinese-Eastern line.—Ed.]

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2. *Political review.*

[Source: M. I. D.]

a. FOREIGN INFLUENCES IN INTERNAL POLITICS

The two nations to-day exerting the strongest influence on internal affairs in China are Japan and Soviet Russia. Japan's influence is felt in Manchuria where her economic interests are very strong. It is Russian influence that is the most marked, however, in China to-day. Three reasons have prompted the Soviets in their present effort there: (1) A desire to stir the Chinese masses with a view to the hoped-for world revolution; (2) a desire to cripple the interests of the imperialistic powers (particularly British) in the Orient, and (3) a desire to check Japanese influence in Manchuria. Two factors have made these Russian efforts notably successful: (1) The favorable position which Russia has assumed in the eyes of the Chinese by giving up all special territorial, concessional, and judicial rights, and (2) the fact that Russia's desire to force the other foreign powers to do likewise has coincided with a deep and universal Chinese desire. The main Russian effort has been in South China. Here Russian advisors have helped to direct the Kuomintang Government, Russian officers have trained the Kuomintang troops, and Russian money and munitions have largely made possible the extension of Kuomintang influence from the city of Cantor to the Yangtze Valley.

So marked has Russian influence been in the movements of the Kuomintang that the South China régime is frequently described as "Red." But what is believed to be the true attitude of the Kuomintang towards Soviet Russia and the adoption of her doctrines is that the Nationalist leaders have adopted the outward forms of Bolshevism in exchange for Soviet help, believing that the end justifies the means. Next to the Kuomintang, the most important center of Russian effort has been in northwestern China controlled by the so-called "Christian General" Feng Yu-hsiang, who also has outwardly embraced Soviet doctrines for policies of expediency in return for Russian munitions and Russian gold. General Feng is the one Chinese military leader whose interests and control clash most definitely with those of General Chang Tso-lin, of Manchuria. Behind the scenes, Japan has been backing General Chang, and Russia General Feng, in an effort to entrench themselves economically more securely than ever in the rich regions of Manchuria and Mongolia.

Japan and Russia however are not alone in exercising a definite foreign influence on internal politics. The whole present attitude of Chinese antiforeignism and distrust may be said to be the result of foreign activities in China and the present strife between north and south is an effort to secure to one faction or the other the control of China as a whole in order to be able to present to the outside world a united front.

The present disorganized condition of China bears with great weight upon her international relationships. For one, Russia would be unable to exert so strong an influence over such large portions of her territory if the internal situation in the country was more stable. And the much mooted questions of customs autonomy and the relinquishment of extraterritorial rights would be very much more easily settled to the satisfaction of both sides if the present political state of China gave promise of greater safety for the lives and property of foreigners, once foreign protection was withdrawn.

b. FOREIGN POLICIES AND RELATIONS

General aims, important policies or doctrines.—The general aim in China to-day is the elimination of the foreigner from his position of vantage in commerce, in extraterritorial rights, in concessions, and from his self-erected pedestal of mental, moral, and cultural superiority. It is shared in by the Kuomintang in the south and the Ankuochun in the north. But of the two would-be federal governments, the Kuomintang or so-called Nationalist Government is the more uncompromising in its announced intentions to wipe the slate clean of all former treaties and agreements in any way infringing upon China's sovereignty, and to negotiate afresh.

In October three commercial treaties—one with Spain, one with Belgium, and one with Japan—reached the end of a 10-year period at which they might either be denounced, revised, or renewed. China considered them unfair and denounced them. At present Belgium and Japan are attempting to negotiate new ones.

Relations to other important Powers, Alliances, or Ententes, Recent Treaties, etc.—The Chinese have a natural dislike, fear, and jealousy of all foreigners. Despite those of long residence in China who deny the fact that Americans are better liked than any other, it is significant to note that in antiforeign riots during the last year that except in Fukien Province, Americans have suffered very few injuries. China's antiforeign feeling is strongest against Great Britain and Japan.

Foreign Spheres of Influence in China may roughly be described as follows:

In Southern Manchuria, Japanese influence very strong.
In Northern Manchuria, Soviet influence very strong.
In Mongolia, Soviet influence controls.
In Tibet, British power growing.
Shantung, Japan economically strong.
Yangtze Valley, British traditionally economically strong.
Canton Valley, British strength waning.
Kwantung, Soviet politically strong.
Yunnan, French economically strong.

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3. Summary of economic situation.

(Source: M. I. D.)

China has, in general, an abundance of raw materials, but these, in many cases, have not been developed or are under foreign control. Due largely to deforestation, the plains of China are subject to floods which cause great loss of life, although there may be food surpluses in a neighboring Province. This fact is due in part to lack of railways and hard-surfaced roads into the interior, and in part to the fact that the masses in China live from hand to mouth and are unable to accumulate a surplus. China is sound at heart, economically, with an industrious population of simple, frugal habits.

The use of modern machinery and methods in Chinese industries is still in its infancy, but with stable economic conditions should grow rapidly.

Because of the crude native methods employed in virtually all industries, a war emergency would result in no material increase in present production of war supplies or of material for their manufacture.

How the various unsettled questions now being agitated between China and the foreign powers are settled or whether they are settled at all will largely determine whether during the next few years China will stride forward or retrogress economically. If China's present claims for the revision of treaties, for tariff autonomy, for the relinquishment on the part of the foreign powers of all concessions, rights, and privileges can be met in a manner satisfactory both to China and the foreign powers, then the next few years will likely see tremendous economic developments in China. But if the foreigners are forced out of China, if foreign trade materially drops, if foreign money is withdrawn, and foreign enterprises in the way of railways and mills and mines cease to function, China will slip back economically many decades and will find herself faced with the task of beginning at the bottom of the ladder once more in the winning of foreign good will and the attracting to her soil of foreign capital and initiative necessary to the naturally beneficial exploitation of her resources and markets.

NOTE.—Attention is invited to an article in the February Bulletin entitled "Japanese Economic Penetration of China."—ED.

DENMARK

A. AERONAUTICAL

1. Aeronautical equipment used in Denmark.

There is at present only one foreign airplane manufactory in Denmark. This is the Rohrbach Metal Aeroplane Co., a German concern, which has a hangar at Kastrup Lufthavn, Kastrup, near Copenhagen. The activity of this concern is chiefly that of assembling Rohrbach planes for other foreign countries, the parts being received from the concern's plants in Germany. However, a considerable number of parts are manufactured at the Danish factory. This concern has operated here for three or four years, and as yet has not manufactured any planes for Denmark, but has shipped a number to Turkey and Japan and is now planning shipments to South American countries. All its planes are of the all-metal type and use German, French, and English motors. The present capacity of the plant here is about 50 planes a year, but in an emergency this output could easily be increased to several hundred planes a year.

During the year 1926 the Danish Navy purchased one plane in England, a large Sopwith, three-motored seaplane, equipped with Sidley-Jaguar motors of 450 horsepower, made especially for scouting work. About one year ago the navy purchased several Danecock chasers in England, and secured at the same time the drawings

for this type of machine and the right to build 12 Danecocks at home. The name "Danecock" is the name adopted in Denmark for the Gloster "Gamecock." The first of the planes which the Danish Navy has built under the right purchased was completed a short time ago at the Kastrup Airdrome and has made a successful series of tests, which proved that the work of the Danish navy yard is, as usual, entirely satisfactory. Two further machines of this type are also now under construction by the Danish Navy. The Danecock chaser is a small one-seated and very fast machine, making a possible speed of 186 miles per hour. It was with a plane of this type that the Danish Lieutenant Topse-Jensen achieved the Scandinavian altitude record of 29,060 feet last December.

Two Fokker biplanes have been purchased in Holland for the army and in this instance also a license was purchased to build similar machines in Denmark.

Denmark's only private aviation company, Det Danske Luftfartsselskab, purchased two airplanes during 1926, namely, Farman Jabiru planes, which were built by the Farman Co. in France, carrying four Hispano-Suizza 180-horsepower motors. This company possesses two other planes, which were built previously by the naval airplane construction factory in the naval arsenal, Copenhagen.

With the latest purchases and recent building, it is estimated that the Danish Navy possesses approximately from 20 to 25 planes, the Danish Army 20 planes, and the private flying company 3 old Fokkers, 4 Farman Jabirus, and 1 De Haviland, a total of 8 planes.

At the present time there is, as stated above, only one Danish commercial aviation line in operation in Denmark. It has thus far purchased only foreign planes. So far as can be ascertained, no other commercial lines of this kind are contemplated, although the company now in operation has plans for extending its services to include connections between some of the larger important Danish cities, such routes being Copenhagen–Odense–Aarhus–Aalborg.

The use of aircraft in Denmark is well developed. The army and navy maintain fleets in proportion with their other activities and the commercial aviation company is regularly extending its activities from year to year. The types of aircraft in general use in this country are:

(*a*) Fokker, (*b*) Farman Jabiru, (*c*) De Haviland, (*d*) and the special types made for the army and navy, many of which have been made in England and have the Hispano-Suizza motors. An idea of the lay-down prices of these planes can be gathered from the fact that it is known that the latest two Farman Jabiru machines, bought last year, cost 50,000 kroner (about $14,000). It is estimated that planes now being built by the Danes themselves for the army and navy are costing about 80,000 kroner (about $22,000).

In order to illustrate to what extent commercial aircraft is used in Denmark, it might be of interest to note that Copenhagen is quite a center for not only Danish, but also for German, Dutch, and Swedish flying routes of this kind. The Danish line maintains a regular daily service from Copenhagen to Hamburg and return, and from Copenhagen–Hamburg to Cologne. They also at times maintain a service between Malmo (Sweden) and Copenhagen.

The Germans maintain a route from Berlin, Stettin, to Copenhagen, Malmo, and return each day.

The Swedish air lines maintain regular daily service over Malmo, Copenhagen, Hamburg to Amsterdam and return.

The Dutch maintain a line similar to the Swedish—namely, Malmo, Copenhagen, Hamburg to Amsterdam—regular daily service being given.

Mention should be made in this connection that the Dutch service is by far the best of all commercial aviation service going over Copenhagen. It is the best organized, has the best equipment, the best pilots, and the very best planes.

From all indications commercial aviation, which commenced in Denmark in 1921, is expanding rapidly. Larger and larger amounts of mail and freight are carried each year and an increasing number of passengers, mainly tourists and business men.

At the present time no American aircraft engines are in use in Denmark. A few Liberty "twelves" have been purchased by the aviation corps of the Danish Army, but they are not now in active operation.

The American Liberty engines mentioned are regarded as obsolete as compared with aeroplane engines produced by other countries, but up-to-date American aircraft engines are well able to compete with foreign aeroplane engines produced in other countries and now used in Denmark. It might be mentioned that the Farman Jabiru aeroplanes now used in this country are equipped with an engine corresponding to the Wright engine.

Competitive aeroplane engines sold or offered for sale in this country are the German Junkers, of 450 horsepower; Lorraine Diedricht, of 500 horsepower; Sidley-Jaguar, of 500 horsepower; Jupiter, of 400 horsepower; and Hispano-Suizza, 180 horsepower each.

It might be mentioned that American parachutes of the Irving type are already introduced in Denmark and are used extensively by the navy.

NOTE.—A description of the plant and activities of the Rohrback Co. was given in the December BULLETIN.—ED.

FRANCE

A. NAVAL

1. Conversion of transports.

The 700-ton coastal transports *Hamelin* and *Alfred de Courcy* have been converted to seaplane mother ships and assigned to Bizerta, where the French are establishing a powerful seaplane base.

NOTE.—These vessels are of war-time construction. Bizerta is being extensively developed into a seaplane base, for which purpose it is ideally fitted, not only because of its inclosed lakes but because of its location on the African coast between Algiers and Tunis and its proximity to Sicily.—ED.

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2. Personnel difficulties.

The critical personnel situation in the French Navy is a much discussed topic at the Ministry of Marine, but all measures taken to remedy the crisis have failed.

The French still entertain the worn-out ideas that tradition, love of the sea, traveling in tropical lands, and lounging in the shade of the palms can attract the present-day youths to the service. The glaring posters of a "Jack Tar," with his legendary parrot and monkey, have little effect on the postwar generation, who daily witness the struggle of their parents to make ends meet due to the high cost of living. They do not consider the prospects of a monthly salary of from $2 to $5 for a period of three years very enticing.

No doubt the French will find out in due course of time that an attractive salary is the surest way to keep the personnel of the navy up to required standard.

The following article pertaining to the critical personnel situation in the French Navy, by Capt. Jacques Mellon (C. C.), French Navy, is quoted as being of interest.

We are often tempted to consider the problem of the navy from the point of view of matériel only. That the government consents to vote necessary credits for ships with a good spirit is happily a fact. But no thought is given to personnel, and if the subject does come up, it is as a matter of reduction and especially reduction of the number of admirals "which is superior to the number of battleships." "Formulæ" has gained a fortune with the public because it strikes the imagination, but which only arouses an opinion insufficiently informed. Certainly, there is in the navy of to-day a "problem of personnel," but it is not that which we are led to believe. The navy is not in need of a bleeding. The disease is of a more serious nature. It is a shortage of personnel necessary to its very life that we are confronted with.

First, let us take the officers. A few figures are only necessary to characterize the situation:

The navy actually counts 1,750 line officers. The actual needs of the navy require 1,900. To construct and keep its ships in repair it has 150 naval

constructors: 180 are absolutely necessary. All other corps have similar deficiencies.

Soon the situation will become aggravated, because new units go into service. We are aware of the fact that a 23,000-ton battleship requires only 15 line officers, while the requirements of 15 destroyers of a total of 22,500 tons are 75 officers—75 against 15 of equal tonnage.

However, what do we witness daily? Since 1920 the navy has lost annually over 100 line officers against a graduating class of 70 from the Ecole Navale. Why did we not increase the number of candidates to the Ecole Navale? Because we were afraid that in liquidating a crisis in "quantity" we would open up a crisis in "quality." Twenty years ago 800 candidates used to present themselves for entrance examination to the Ecole Navale. The mode of selection was severe. Out of seven or eight candidates only one was admitted. In 1925 there were 213 candidates to fill 75 places; for three called, one was chosen. We must further note that every indulgence on the part of the examining board was necessary. We had proof of this a few months later when, amongst the candidates admitted, 11 were dropped. But the results of the entrance tests were so mediocre that to replace the 11 candidates the examining board found it only possible to admit three new candidates. Thus, in the year 1925, in all France we could only find 70 candidates who were desirous and who were capable of becoming line officers. It is especially in officers with families that the "falling off" is noticed. At a time not very far gone the love of the profession was transmitted from one generation to another: the fathers themselves kindled the spark in the hearts of their sons. Such is not the case to-day. Of 325 boys admitted to the Ecole Navale 1920–1924, only 44 belonged to officers' families, and we have even witnessed officers put their sons in the service and then resign themselves from active service.

The question of the high cost of living has effected everyone, both civil and military, but the naval officer has a special claim that it be solved. When he meets in foreign ports, officers of foreign navies of similar rank, his critical situation is brought home to him. The pay of a French lieutenant is about 3,500 francs (gold); in Germany, about 5,500; in England, 7,500; and in the United States 12,000. A French admiral gets 10,000 francs (gold); in Germany, 18,000; in England, 47,000; and in the United States, 40,000. Is it any wonder that our officers, when anchored in a foreign port, hesitates to go ashore when his tramway fare alone costs him 6 gold francs and all other expenses in proportion. And how about our naval attachés on duty in countries with high exchanges? In 1925 the situation was so precarious that not even one candidate presented himself for the favored post of naval attaché.

The "Loi des Cadres" (status of officer personnel) is of paramount importance in relieving the situation: the proposed law (Loi des Cadres now before the Chamber) is close to the officer's heart—his whole future depends upon it. At present writing the complement of officers is regulated by the budget, and a single decision of the Ministry can reduce the officer strength. In fact, since the war the higher grades have been greatly reduced. The number of admirals has been reduced from 45 to 36. This arbitrary "assignment of ranks" is disorganizing the whole service.

So much for the line officer. But how about the technical corps? The government makes large sacrifices to educate this type of officer; but when they are of real value to the navy they leave to accept higher paying positions in civil life. In the construction corps alone during 1925, 21 officers (13 per cent) voluntarily resigned.

The 1927 budget contains certain credits which will help the financial status of officers abroad. The intense propaganda carried on by the Navy Department is also commencing to bear fruit—300 candidates presented themselves in 1926 for entrance to the Ecole Navale, 95 of whom were admitted.

Enlisted personnel. The crisis in the enlisted ratings is no less alarming than that of the commissioned personnel. The theoretical strength for the past few years has been 55,000 men. In reality this number has never been attained. In 1924 the effectives were hardly 50,000 men; in 1925, about 53,000; in 1926, about 52,000.

By a careful weeding out of shore stations about 5,000 men were made available for sea duty. Also old ships were put out of commission to get crews to man the new units. All such measures, however, are only palliative and will not meet our needs for 65,000 men in 1932.

To have a reliable and efficient personnel we must have reenlisted men. All foreign navies are trying to have their navies consist of reenlisted personnel—i. e., men who make the navy their profession in life. In the English Navy the majority of enlistments are for 12 years. Even in the Soviet Navy enlistments are for four years, while in the Soviet Army only two years is required. Our efforts should, therefore, be directed to obtaining an increase in voluntary enlistments and reenlistments. But the reverse is what actually exists. Before the war the navy recruited 6,000 to 8,000 voluntary enlistments and 3,000 to 4,000 reenlistments annually. In 1925 these figures were reduced to 3,400 and 1,800, respectively, and figures for the first three months of 1926 show still poorer results.

A good effort has been made to attract young men to enter and remain in the service; a reenlistment bonus has been created; a special bonus is offered for men remaining over 10 years; increase of pay for length of service has been instigated, etc.—but all such measures have failed to meet the crisis.

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3. Subversive activities among enlisted personnel.

The communist journal, Humanité (editor, Communist Deputy Marcel Cachin), runs a daily column headed "Chez les soldats et les Marins—Dans la Grande Famille" for the sole purpose of airing the petty grievances of the "poilu" and "marin."

The following, taken from Humanité January 14, is a good sample of the average propaganda printed in this paper:

ON BOARD THE CRUISER "MULHOUSE" AT TOULON—MUSSOLINI AND CHOCOLAT

When the executive officer Laforges was detached, the crew had hopes of a little peace and contentment. Helas, his successor, Commander Couillot, otherwise known as Mussolini, is another "hard boiled" one.

We must remark that said Commander Couillot was detached from the transport *Garonne* on a protest made by the crew.

On board the *Mulhouse*, Mussolini, aided by the old fogy "Chocolat" (without doubt a long-service chief master-at-arms), is following such a policy of annoyance and vexations toward the crew as to have necessitated the engine-room force writing a petition to the captain.

We join with the crew of the *Mulhouse* in demanding the immediate detachment of Commander Couillot (Mussolini) and the old fogy "Chocolat."

There is no doubt but that this propaganda appeals to the discontented element on board ship and that the journal Humanité is read by a fair number of enlisted men, especially mechanic ratings recruited from the industrial centers.

During the recent discussion of the navy budget in the Senate Monsieur le Comte Louis de Blois questioned the Minister of Marine as to what steps he intended to take to defend the officers and petty officers from slanderous attacks in the communist journals. Le Comte de Blois quoted several items similar to the item quoted herein.

The Minister of Marine replied to Monsieur le Comte de Blois, in substance, as follows:

I might remark that if there are certain journals who pass their time in slandering the personnel of the navy, there are, also, happily in France, quite a number of leading journals, of more importance and better informed, who are pleased to give justice to the strong efforts put forth by the navy to acquire a high state of efficiency and discipline indispensable to its high mission.

I energetically condemn the propaganda to what Le Comte de Blois made reference. Orders have been issued to suppress with an iron hand any attempts to undermine discipline.

But that is not all. I have prepared a dossier which will be forwarded to the Department of Justice in brief delay to enable that department to prosecute all persons guilty of propaganda against the naval forces and who can be prosecuted within the scope of the law. The Government will not tolerate these incessant attacks on anyone who has the honor to wear "epaulettes" or a "blue collar."

In connection with the item quoted herein from the cruiser *Mulhouse*, a court-martial was recently convened to try several members of the crew of the *Mulhouse* for communist activities. The press remained silent on the results of the trials and nothing has appeared to date as to what developed at the trials.

B. AERONAUTICAL

1. The Richard-Penhoet hydroplane.

On invitation from the officials of the Chantiers et Ateliers de St. Nazaire (Penhoët) I witnessed a flight of the above-mentioned plane at Saint-Nazaire. The flight was of about 45 minutes duration. Very little could be determined of the manner of taking off from the water and landing, as both were accomplished too far out to sea from the point of observation.

The pilot taxied slowly away from shore on starting, stopping from time to time to make adjustments. He continued this for some 30 minutes before making an effort to take off. By this time he was nearly out of sight. He landed far out and taxied in. The actual time in air was 45 minutes; the height reached, 1,800 feet.

Officials of the company stated that the Japanese had contracted for one plane and had bought the plans. During the recent aviation show the assistant naval attaché was told by a French manufacturer that he had heard the Japanese had contracted for five of the Penhoët-Richard planes. This plane was not exhibited at the show because its size prevented its entering the building. It was, however, painted in full size on the walls of the Salon, with the inscription above it "The largest plane in the world."

At the time of the flight witnessed, officials of the Penhoët Co. stated that this plane was to be turned over to the French Navy. A French naval pilot was conducting the trials. To a later query to the "service technique" at Paris as to what disposition was to be made of the plane, the reply was received that it was not to be turned over to the navy, but was to be used for purely commercial purposes, and was designed and built without any government connection.

From several remarks picked up at the aviation show the impression seems to be that this plane is not as yet considered as being a very great success. It is still in the hands of the manufacturers, and recent information has come through to the effect that the 420-horsepower Jupiter motors now installed are soon to be replaced with 500-horsepower Jupiters of later design.

The cost of this plane, according to Mr. Richard, was about 5,000,000 francs, or, on a basis of 30 to the dollar, $167,000.

The following technical notes were furnished by the Penhoët Co.:

Monoplane seaplane with thick wings, wing section ranging from biconvex in front to dissymetric at the rear, the thickness at the center being 20 per cent, with a reduced thickness at the rear extremity, the rear extremity having a thickness of 7 per cent.

CHARACTERISTICS

Length, 89 feet.
Span, 131 feet.
Width of the hull, 13.2 feet.
Height, 16.5 feet.
Depth of wing (maximum), 29.7 feet.
Depth of wing (at extremity), 16.5 feet.
Maximum thickness of wing, 5.9 feet.
Wing area, 2,943 square feet.
Power, 2,100 horsepower.
Five 420-horsepower Jupiter engines, 1,700 revolutions.
Weight, empty, 25,300 pounds.
Weight, loaded, 38,500 pounds.
Weight of gasoline, 6,600 pounds.

Wireless telegraphy, light system, Bechard fire extinguisher, and heating system, total, 1,320 pounds.
Commercial weight, 5,280 pounds.
Average speed, 100 miles per hour.
Taking off requires 35 seconds.
Theoretical ceiling, 13,860 feet.
Radius of action when cruising, 1,125 miles.
Maximum radius of action, 1,562 miles.

PARTICULARITIES OF THE CONSTRUCTION

Overhanging wings, without rigging. Four main longerons (one piece longerons) made of armed wood (patented); transversal connections made of a special steel with a cloth covering, duralumin in the neighborhood of the engines; four engines on the leading edge, one engine on the fore part of the hull; one passageway gives access to the rear part of the engines when the machine is in a flying condition; tanks are located in the wing and are easy of access; hull is divided into two compartments (the lower compartment, installed as a cabin, is large enough to contain 40 passengers; the higher compartment is destined for the machinists; the pilots are placed on top the apparatus); double station and two seats for the navigators; piloting by means of a hydraulic servomotor changeable to hand steering by means of a lever. This machine has proven to be very stable both on the water and in the air; it takes off without effort on the part of the pilot, steers easily with the engine on full throttle, and has a tendency to dive down when the speed is reduced.

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2. Seaplane-launching catapult, light cruiser "Primauguet."

In general, the catapult of the *Primauguet* is a close copy of our turntable catapult, but the following differences of interest were noted:

The structure itself has been refined and is made up of plates and shapes, the plates being lightened with flanged holes. I estimate that by this change in the construction about one-third of the weight has been saved. The release gear on the car takes hold of four lugs which are installed on the plane. The two forward lugs stretch down about 4 inches below the chine and must offer considerable resistance. The two rear lugs are well above the chine, but also probably offer considerable resistance until full planing is obtained. These lugs engage in folding arms on the car, and the rear lugs are slightly higher than the front ones. The arms are about 12 inches long. With the car in battery position, these lugs are kept from falling

down by means of cams. Also across the front of the lugs are gate bars which are held by a trigger to prevent the plane from going ahead while the engine is running at full power. These gate bars are not released until pressure is admitted to the main cylinder. The car itself is kept from going forward by means of a trigger somewhat similar to that used by us. The valve-operating gear is somewhat different from ours, there being a rod connected with the release lever which automatically pushes down on a valve located in the head of the main valve, which apparently admits initial pressure to the main cylinder. The brake is a Chinese copy of our own. The towing cable appears to be 1½ inches in diameter and appears to be of the extra flexible type. On account of the large size of the towing cable, the sheaves used are of a large diameter. The master valve is controlled by means of a cam, as in the original turntable catapult. The turntable base is about 8 feet in diameter, and the catapult is mounted on conical rollers inside of the traversing gears. The gauges are calibered in kilograms per square centimeter, and a rough conversion of the pressure said to be used indicated that they are substantially the same as we use. The overall length is about 60 feet and the power stroke about 45 feet. The catapult was built by the Saint Nazaire Penhoët Co.

The engineer of this company evidently took time to refine the design, as above noted. The car itself is composed of two side girders of a corrugated channel type. The tow line makes fast to the middle of the front transom, and from this point a fore-and-aft corrugated member runs in the plane of the bottom of the car, and from the middle of the length of this member there radiates an X frame of corrugated members to the four corners of the car. The deck of the car is formed of a flat steel plate with numerous holes of about 1 inch diameter, which holes are flanged. The car is built of sheet steel something less than 16 gauge—probably 20 gauge—and appears to be light, although the weight was not obtained. Instead of being mounted on slippers the car is mounted on a series of two upper and two lower rollers at each slipper position, and each slipper is also furnished with a side roller. All of these rollers are stated to be of the ball-bearing type. They are about 2 inches in diameter. The horizontal rollers work on the horizontal flange of the T bar and the vertical rollers on the point of the T bar.

About 100 flights have been made, and the pilot interviewed had made about 25 flights. To date no difficulty has been experienced.

There is some questions as to whether this catapult is to be installed just abaft the stacks, immediately forward of the boat stowage, or on the quarter deck. Judging from the extension added to the boat crane, which was seen in the harbor, the former position seems to be

the one for which preparation has been made, and there is no appearance of a foundation having been installed on the quarter-deck.

NOTE.—The *Primauguet*, on which the above-described catapult is to be installed, is one of a new class of three cruisers of 7,800 tons, mounting eight 6.1-inch guns and making about 34 knots. The French are rapidly taking to aircraft on their vessels, and each of these cruisers is to carry two observation planes.—ED.

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3. *Paris Aviation Salon, 1926.*

PLANES EXHIBITED

Land planes:		Seaplanes:	
Pursuit	9	Observation	5
Two-seater fighter	9	Torpedo	1
Observation and day bombing	10	Training	1
Night bombing	3	Transport	3
Training	9		10
Ambulance	1		
Transport	8		
	49		

(*a*) PURSUIT AIRPLANES

The progress in military aviation made since the 1924 salon is particularly apparent in the pursuit class. In 1924 a number of airplanes were shown which were equipped with 300-horse power engines such as the *Nieuport 29*, *Bleriot-Spad 81*, and *Dewoitine D. 1.* These airplanes are now obsolete, as their performances were inadequate to meet modern conditions. They have been replaced by airplanes with from 450 to 500 horse-power engines and four guns, of which two are in the wings.

Alongside this category there is now appearing a new class popularly called the "Jockey" type, in which speed and maneuverability are given precedence over armament. To assist the manufacturers to obtain these qualities, the government permits the gasoline-tank protection to be omitted and the duration to be reduced from 2 to 1½ hours. Also the number of guns is reduced to two. The only airplane of the "Jockey" class exhibited was the *Nieuport 48*, but several other constructors, notably Dewoitine, are building airplanes with these characteristics.

The following pursuit airplanes were shown: *Bernard 12*, *Bernard 15*, *Bleriot-Spad 61*, *Fiat C. R. 20*, *Loire-Gourdou-Leseurre 32*, *Loire-Gourdou-Leseurre 35*, *Nieuport 42*, *Nieuport 48*, *Wibault 7*.

The only pursuit airplanes of all-metal construction including wing covering were the *Bernard 12* and *Wilbault 7*. However, the *Loire-*

Gourdon-Leseurre 32 and *35* (400-horsepower Jupiter and 450-horsepower Renault) have all-metal structures consisting of duralumin tubes with welded steel joints. They are parasol monoplanes directly derived from the former height record holder but with a simplified system of struts.

The *Wibault 7* (420-horsepower Jupiter) is entirely of duralumin. The fuselage is built up of L and T section frames and covered with corrugated duralumin sheet. The wing spars are of the box type and braced by diagonal tubes. The ribs are of duralumin sheet with lightening holes and riveted to the spars by angles. The wing covering is attached to the ribs by pleats. The shock-absorbing gear is designed by Vickers (Ltd.), who are making the *Wibault* in England.

Both the *Nieuport 42* and *48* (500 and 400-horsepower Hispano-Suiza) have wood monocoque fuselages, spruce wing ribs, duralumin spars and struts, and cloth-covered wings.

Of the two Bernard airplanes shown, "type 12" all-duralumin monoplane (420-horsepower Jupiter) has wing spars built up of two U-section members and a number of cross tubes. The ribs are in part of box section and in part of tubes, and the wing covering is of metal strips turned in and forming U section. The *Bernard 15* (500-horsepower Hispano-Suiza) is a sesquiplane with a pair of interplane V struts on each side of the fuselage. The construction is entirely of wood, including the wing covering.

The *Bleriot-Spad 61* (450-horsepower supercharged Lorraine) is the airplane which holds the present height record of 40,820 feet. It is a slightly enlarged edition of the standard *61* pursuit airplane and like it has a wood monocoque fuselage and duralumin spars and ribs.

The *Fiat C. R. 20* (400-horsepower Fiat) has a fuselage with the main longerons of steel tubing and fairing strips of duralumin. The box-section wing spars are of steel and the ribs of duralumin. The interplane struts form a Warren girder as in the old *S. V. A.* biplanes.

(*b*) TWO-SEATER FIGHTERS

In the 1924 exposition the *Koolhoven F. K. 31* and the *Nieuport 42C2* were the sole representatives of this class, which has now become so important that it was represented at the 1926 salon by the following nine airplanes: *Armstrong-Whitworth "Ajax," Avia B. H. 26, Avimeta A. V. M. 88, Bechereau 2, Koolhoven F. K. 35, Levasseur 6, Mureaux 3, Mureaux 4, Villiers 5.*

The *Avia B. H. 26 biplane* (430-horespower Jupiter) is of wood construction, but with undercarriage and interplane struts of steel.

It is an enlarged edition of the *B. H. 21* pursuit type and has a Jupiter engine manufactured under license from Gnome-Rhone by the Walter Co. in Prague.

The "Societe pour la Construction des Avions Metalliques," a subsidiary of the Schneider firm, with a factory at Courbevoie, exhibited the *Acimeta A. V. M. 8S* parasol monoplane (520-horsepower Hispano-Suiza). It is equipped with a high compression V-type engine which develops 595 horsepower at 2,000 revolutions per minute.

The fuselage, of rectangular section with rounded corners, is composed of four longerons and a number of transverses. The wing spars are lattice girders. The covering of the entire airplane is of sheet alferium ribbed longitudinally and riveted to the structure.

Under the engine is the honeycomb radiator, the upper half of which is inside a tunnel equipped with shutters. In the lower part of the fuselage is placed a gasoline tank which can be dropped in flight. This tank has a capacity of 110 gallons.

The airplane is equipped with six machine guns (each with 500 cartridges) as follows: Two Vickers, firing through the propeller; two Darne guns, mounted in the wings clear of the propeller disk; and twin Lewis guns on a ring mount in the rear cockpit.

Included in the equipment is a collimeter sight for the forward guns produced by the Societe d'Optique de Precision de Levallois and invented by the Duc de Gramont, a Badin-Pioneer flight controller, fuel and oil pressure gauges, water and oil thermometers, oxygen and electric heating apparatus for both occupants, Hermann-Auclair fire extinguisher, and Veit-Schneebeli engine starter.

In the rear cockpit is installed a sending and receiving radio set and camera. The pilot has a seat-type and the observer a back-type parachute. The rear seat can be pushed out of the way and the cartridge container drawn forward in its place.

All controls are of alferium tubes with steel joints and ball bearings. The landing wheels are composed of alferium disks with rubber shock absorbers and pistons sliding in cylinders inside the wheels.

The *Bechereau 2* (500 horsepower Salmson) is a development of the Salmson-Bechereau racer built for the 1924 Beaumont cup but not flown. It is a monoplane of wood construction having, between widely spaced landing wheels, a small plane. The general appearance is reminiscent of the Italian Breda-Tebaldi pursuit airplane.

The *Berchereau* is produced by a newly formed company entitled "Societe pour la Reproduction des Avions Prototypes," which has acquired the services of M. Bechereau, who designed the famous 1913 Duperdussin monoplanes and the original Spads.

Although the *F. K. 31* high-wing monoplane as regards design was one of the most interesting airplanes of the 1924 salon. Koolhoven

now prefers the low-wing type, as the head resistance is reduced by the shorter length of wing and landing-gear struts.

The *F. K. 35* monoplane is a two-seater fighter, but by adding an upper wing the strut fittings for which are provided, it can be converted into an observation biplane. The engine is a 420-horsepower Jupiter.

Koolhoven has invented a mechanical gun turret to overcome the difficulty of operating the ordinary ring mount at high speeds. In this invention the principle of the inertia engine starter is utilized, there beng a flywheel which is set in motion by hand or foot and whch rotates at 16,000 revolutions per minute. The gunner sits inside a cylinder with a vertical axis, and the whole cylinder is rotated by the flywheel by means of a clutch and gears.

The *Levasseur 6* (500-horsepower Hispano-Suiza) is a development of the Levasseur marine airplane adapted for land use. It is of mixed construction, having a wooden fuselage and wing ribs, but duralumin spars. The single interplane strut on each side of the fuselage is of I section.

The *Mureaux 3* (500-horsepower Hispano-Suiza) is a high-wing monoplane with an elaborate system of struts running up to the fuselage and wing from the frames embracing the wheels. The structure is of duralumin and the wing covering of fabric. The *Mureaux 4* is identical with the type 3 except for the substitution of a 500-horsepower Salmson for the Hispano-Suiza.

The *Villiers 5* (450-horsepower Lorraine) is a two-seater night fighter having a wooden monocoque fuselage, wood wings, and a single duralumin tube interplane strut on each side of the fuselage.

(*C*) OBSERVATION AIRPLANES

The following observation airplanes are shown:

Aero 11, *Breguet 19*, *Breguet 19 G. R.*, *Caudron 104*, *Descamps 17*, *Fokker C. V. D.*, *Potez 25*, *Potez 25 G. R.*, *Potez 28 G. R.*, *Smolik S. 16.*

The Aero Co., of Prague, showed a single bay biplane with steel tube fuselage and ailerons but wood wing spars and ribs. The engine, a 240-horsepower Breitfeld-Danek, is of insufficient power to give an adequate performance to cope with present conditions.

Of the two *Breguets* shown, the standard observation and day bombing type was represented only by the fuselage, but there was exhibited the airplane which holds the world's nonstop record of 3,355 miles in 32 hours (Paris to Djask, Persia). This airplane is similar to the ordinary type, but has the cockpits moved rearward to allow more space for fuel. The cut-out in the center of the trailing edge of the top wing has been filled in and the tail increased in size.

The *Caudron 104* (420-horsepower Jupiter) is of the old-fashioned "stick-and-string" construction typical of this company. So far as known, no orders for this model have been received, the company depending upon training airplanes for its continued existence.

The *Descamps 17* (450-horsepower geared Lorraine) is of duralumin with cloth wing covering. The wing spars are built-up sections and the fuselage longerons are of duralumin tubes.

The well-known Fokker C. V. D. (500-horsepower Hispano-Suiza) was loaned by the Dutch Army Air Service. This airplane can be fitted with a variety of engines and serves various purposes according to the area of the wings used. The airplane exhibited had the small wing area (310 square feet).

Henry Potez showed three biplanes—the standard *25* observation (500-horsepower W type Hispano-Suiza), *25 G. R.* long-distance (450-horsepower Lorraine), and *28 G. R.* (500-horsepower Farman). The last, an enlarged edition of the *25 G. R.*, is specially arranged for long-distance flights and for a time held the nonstop record with the Paris-Basra flight. Potez airplanes have fabric-covered wood wings and wood fuselages covered with plywood. The interchangeable engine mountings, however, are of duralumin.

The *Smolik S. 16* biplane (450-horsepower Lorraine) is the first Czech airplane having an all-metal structure. The fuselage is of steel tubing and the wings and tail of duralumin. The *S. 16* is remarkable by reason of its exceedingly long fuselage. The landing gear has a very wide track, the outer struts running up to the lower wings and continuing thence to the upper fuselage longerons. The ailerons do not run out to the heavily rounded wing tips, being set in the trailing edge.

(*d*) BOMBING AIRPLANES

There were only three airplanes in this category—the *S. E. C. M. 120*, *Farman 160*, and *Dyle and Bacalan D. B. 10*.

The *S. E. C. M. 120* is a single bay biplane having a fuselage of duralumin tubes and stamped duralumin plate joints riveted to the tubes. In the nose is a 650-horsepower Lorraine fitted with flame dampers on the exhaust pipes. The crew is placed well to the rear, there being two cockpits in tandem with dual control. The control leads are of duralumin tubes mounted on ball bearings. Under the cockpits is a very large bombing compartment with a floor trap.

The *Farman 160* (two 500-horsepower Farman), of which only the fuselage and center section were shown, is a slightly enlarged edition of the *Goliath* bomber and presents no features of particular interest beyond the very nice streamlining of the engine nacelles.

The *Dyle and Bacalan* is a monoplane with very thick center section between the two 420-horsepower Jupiter engines, allowing

access to them in flight. The fuselage is of duralumin tubing, the wing spars of steel and the ribs of duralumin. Only the center section of this airplane was exhibited.

(*e*) TRAINING AIRPLANES

Nine training airplanes were on view. Both Caudron and Morane-Saulnier showed three types, and one example each was exhibited by Avia, Hanriot, and Smolik. Hanriot likewise had a twin float training seaplane and an ambulance airplane. None of these aircraft merits description, as all are well known.

(*f*) OBSERVATION SEAPLANES

This general category, covering a wide variety of types, included the following five airplanes: *Besson 35* (twin float seaplane), *Breguet 19* (twin float seaplane), *C. A. M. S. 37* (flying boat amphibian), *Levasseur 4* (marine airplane), *Villiers 2* (marine airplane).

The *Besson 35* (120-horsepower Salmson) is a tiny low-wing monoplane of wood construction designed to operate from a submarine like the small Heinkel seaplanes bought some years ago by the United States Navy, and which flolds up and is stored in a tube on deck. The *Besson 35* can carry two persons, but, if so, its radius is reduced from 435 to 200 miles. The wing is of rather thick high-lift section.

The *Breguet 19* (450-horsepower Lorraine) is a standard land airplane mounted on two long duralumin floats having a cross section of the Richardson type with rounded top and pronounced V-bottom.

The *C. A. M. S. 37* (450-horsepower geared Lorraine) is a biplane flying boat with folding wings and amphibian gear. The bow resembles the lower part of the nose of an airship control car having a projection with triplex glass panels permitting a direct downward view. The after gunner's cockpit is almost midway between wings and tail. The construction is entirely of wood.

The *Levasseur 4* is a three-seated observation airplane (450-horsepower Lorraine) with folding wings, a water-tight plywood-covered fuselage, and releasable landing gear. Around the engine cowling is a ridge to prevent burying the nose under water when the airplane is being towed.

The *Villiers 2* is a two-seater fighter marine biplane with a 450-horsepower Lorraine engine, designed to operate from shipboard and having a quick-release landing gear. The lower wing root is rather high up on the fuselage, so as not to be submerged when the airplane is afloat.

ENGINES

(*a*) Gnome-Rhone: One of the features of the salon was the widespread use of the high-powered air-cooled radial engine, particularly the Jupiter, manufactured by the Gnome-Rhone Co. This firm has just produced a new model Jupiter—the type 6—which is intended to be the reply to the British Bristol Jupiter VI. This engine is to be made both direct driven and with the Farman two-to-one reduction gear.

The new engine, while having the same-sized cylinders as the earlier models, develops 480 horsepower at 2,000 revolutions per minute with limited throttle and 575 at 2,000 revolutions per minute with full throttle. The maximum horsepower developed is 608 at 2,175 revolutions per minute.

The compression of this engine is 6.5, but the company also produces a 5.3 compression engine which develops 520 horsepower at 2,000 revolutions per minute at full throttle.

There are a number of changes in the new engine as compared with its predecessors. In the first place, the over-all diameter has been reduced 4 inches. This has been accomplished by interlacing the cylinders by cutting arcs out of the bottoms of the cylinders and pistons. The cutting has been done on the nonthrust sides of the cylinders and without affecting the main webs of the pistons.

The crank case is a forged duralumin production instead of the casting previously used. This type, while of course expensive, due to the large number of milling operations involved, has immensely greater life than the cast crank case. There are triple instead of double valve springs and the rocker gear has been lightened. Another improvement is the insertion of Invar metal packing fins in the cylinder heads to compensate for the differential expansion of the aluminum heads and the steel studs bolting them to the cylinders.

A new type of Triplex carburetor is used, in which the dew point has been eliminated by passing the oil around the Venturis in the choke tubes. This arrangement has the additional advantage of suppressing the oil cooler.

The other types of French Jupiter engines are the marine type 9Aa, developing 380 horsepower at 1,575 revolutions per minute (5 compression); the standard type 9Ab, with 5.3 compression, giving 420 horsepower at 1,700 revolutions per minute with limited throttle and 460 horsepower at full throttle; and the high-compression (6.57) model 9Ac, which also develops 420 horsepower with limited throttle, but 515 horsepower with full throttle opening at 1,750 revolutions per minute.

The weight of the new Jupiter 6 without reduction gear is 750 pounds and with reduction gear, 815 pounds.

(*b*) Salmson: The success of the Jupiter has caused the Salmson and Lorraine-Dietrich Cos. to bring out high-powered air-cooled radial engines. In the new Salmson 460-horsepower model, known as type A. B. 18, the 18 cylinders are in two rows, the rear cylinders being directly behind the front ones instead of being staggered. In reply to queries as to the cooling of the rear bank, the Salmson engineer stated that the air currents produced by the propeller are not from front to back around the crank case, but from back to front near the cylinder heads. In order to equalize the temperatures of the front and rear cylinders, each pair is connected by ribs.

Each cylinder has two valves only operated through push rods from the front. The bore and stroke are 5 by 6.8 inches, the rated horsepower (460) is developed at 1,700 revolutions per minute, and the weight is 1,080 pounds.

The other new Salmson model has seven cylinders and develops 95 horsepower at 1,800 revolutions per minute. The weight is 287 pounds, and bore and stroke 4 by 5.2 inches.

(*c*) Lorraine-Dietrich: The Lorraine-Dietrich Co. have brought out the first air-cooled engines in their history. They are in two models—a 220-horsepower, 7-cylinder, and a 450-horsepower, 14-cylinder. At first sight these engines might be mistaken for the Armstrong-Siddeley Lynx and Jaguar, but closer inspection reveals some differences in detail chiefly in the mounting of the accessories and in the valve gear. The data on the two models are:

220-horsepower, at 1,800 revolutions per minute; bore and stroke, 5.4 by 6 inches; weight, 573 pounds.

450-horsepower, at 1,800 revolutions per minute; bore and stroke, 5.4 by 6.4 inches; weight, 882 pounds.

(*d*) Renault: The Renault Co. exposed a new series of 12-cylinder V-type engines derived from the 420-horsepower model which won the engine competition last year. These engines are much lighter than the older types, have dry sump lubrication, stronger and lighter crank shafts, accessories (including oil cleaners) mounted at the rear, etc. The new models are the following:

450-horsepower, at 1,800 revolutions per minute; bore and stroke, 5 by 6.8 inches; weight, 772 pounds.

550-horsepower, at 1,800 revolutions per minute; bore and stroke, 5.4 by 7.2 inches; weight, 1,014 pounds.

700-horsepower, at 1,700 revolutions per minute; bore and stroke, 6.4 by 7.2 inches; weight, 1,367 pounds.

The three types can be supplied with reduction gears, in which case the weights are increased by 66, 77, and 121 pounds, respectively.

(*e*) Caffort: The Caffort engine was the most original one exhibited at the Paris Salon and is as yet in the experimental stage. It is a 12-cylinder engine of the horizontally opposed type. The

construction is of aluminum alloy, each pair of cylinders being held by bolts to the crank case. There are four valves per cylinder, and each valve has three concentric springs. The valves are operated by push rods from four cam shafts, the inlet cam shafts being in the lower part of the crank case, and the exhaust cam shafts above.

The crank shaft consists of three pairs of throws 120 degrees apart, the adjacent throws in each pair being 180 degrees apart. There are four Zenith carburetors, two mounted at each end. Each carburetor feeds alternate cylinders.

The reduction gear gives a propeller speed of 1,060 revolutions per minute at an engine speed of 2,000 revolutions per minute, and the propeller turns in the same direction as the crank shaft. A Herzmark starter is provided.

One great advantage of this engine is its low head resistance, it being particularly well adapted for placing inside a thick wing.

The general characteristics are: bore and strike, 5.8 by 6 inches; compression, 5.03; power, 500 horsepower at 2,000 revolutions per minute; weight, 1,100 pounds.

The Armstrong-Siddeley Co. showed their well-known Genet 65-horsepower, Lynx 180-horsepower, and Jaguar 385-horsepower engines, and also their new five-cylinder Mongoose, which develops 125 horsepower at 1,620 revolutions per minute, has cylinder dimensions of 5.1 by 5.6 inches, and weighs 340 pounds. This engine has the features associated with Siddeley engines, including aluminum alloy heads screwed and shrunk into steel cylinders, which are themselves screwed into the liners, the rotary fan for the fuel mixture, dry sump lubrication, etc.

On the Bristol stand were the 32-horsepower Cherub III, the 130-horsepower Lucifer IV, and the 425-horsepower Jupiter VI.

Breitfeld-Danek, of Prague, had on view their Perun II 6-cylinder vertical engine, which gives 240 horsepower at 1,400 revolutions per minute. The bore and stroke are 6.4 by 7.6 inches, and the weight is 694 pounds. There was also seen the type BD, which is a 12-cylinder V-type engine with the same units as in the Perun II. It gives 500 horsepower at 1,400 revolutions per minutes, and weighs 1,212 pounds.

The Walter Co. showed their 60, 85, and 110 horsepower air-cooled radial engines and parts of the Jupiter engine now made in Prague.

Fiat exhibited the A. 20, A. 22, and A. 25, 400, 550, and 900 horsepower types; the A. S. 2 Schneider Trophy model did not arrive. These engines are extraordinarily clean in design, rivaling the Hispano-Suiza in this respect.

The only modern engine on the Isotta-Fraschini stand was the 12-cylinder 500-horsepower Asso.

Farman displayed their 500-horsepower 12-cylinder and 700-horsepower 18-cylinder engines, and Panhard 2-sleeve-valve models, both having 12 cylinders in two banks. The more modern model is rated at 525 horsepower at 1,800 revolutions per minute, and weighs 1,200 pounds. The bore and stroke is 5.6 by 6.8 inches. A great advantage of the sleeve valve for aviation engines is the reduction in height of the cylinders.

Hispano-Suiza showed their famous 12-cylinder 500-horsepower W and V types, and also the new 400 horsepower model, which is a high compression (6.2) version of the standard 350-horsepower, and is being used for the new Jockey pursuit airplanes.

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3. Summary of French naval aeronautics.

A. Heavier-than-air types of planes

(*a*) Planes assigned to active service.

1. Unit of organization—squadron.

2. Total number of service units (exclusive of school planes and ships' planes)—12.

3. Composition of units—

Type of unit	Operating	Reserve
Fighting (pursuit)	9	6
Observation	9	3
Torpedo	9	3
Bombing	9	3
Patrol		
Scouting	9	3

NOTE.—The above table gives normal operating strength of squadrons. At present, due to lack of personnel, squadrons are being operated six in service and six in reserve for scouting and observation and torpedo and bombing squadrons, and nine in service and six in reserve for fighting squadrons.

4. Number of service planes, by types, at home, based at shore stations—

	Planes
Bombing and torpedo:	
Hydroplanes, 3 squadrons	18
Land planes, 2 squadrons	12
Scouting and observation, hydroplanes, 4 squadrons	24
Fighting, land planes, 1 squadron	9
	63

5. Number of service planes, by types, at home, based on ships—scouting hydroplanes, estimated at 12.

6. Number of service planes, by types, abroad, based at shore stations—

	Planes
(Bisorta) fighting, land planes, 1 squadron	9
(Bisorta) scouting and observation, hydroplanes, 1 squadron	6
	15

7. Number of service planes, by types, abroad, based on ships—none.

8. Total number of each type service planes assigned to battleships, to cruisers, to aircraft carriers, to aircraft tenders, to other vessels:

Battleships, armored cruisers.—The original system of launching planes by a track from the turrets has been abandoned and it is planned to fit all battleships with catapults as soon as a suitable catapult has been developed. Two types are now under test—the heavy type to be used on battleships, the smaller type on armored cruisers and light cruisers.

Light cruisers.—At present, battleships and the three light cruisers *Lamotte-Picquet*, *Primauguet*, and *Duguay-Trouin* carry two seaplanes each, although no catapults are installed.

Aircraft tenders.—Bapaume (converted gunboat), attached as training ship to St. Raphaël Station. Carries four to six seaplanes. *Montmirail* (sister ship to *Bapaume*), reported in Janes as fitted similar to *Bapaume*, although not reported as such in any French reports.

Aircraft carrier Béarn.—Under construction. To carry 24 assembled planes, scouting, torpedo, and fighting, and to have a total carrying capacity of 60 planes.

9. Total number of service planes in commission—90.

10. Total number of service planes in reserve considered necessary to support the above squadrons in commission—42.

11. Total number of service planes actually in reserve to support the above squadrons in commission—59.

(*b*) Planes assigned for training purposes.

1. Total number of training planes in commission—

	School	Service
Hydroplanes (128)	91	37
Landplanes (125)	61	64

(*b*) *Reserve establishment.*—Report No. 227 of the Chamber of Deputies of 1924 states that a reserve personnel can be counted upon in the following numbers:

Officers	110
Petty officers and men as flying personnel	400
Petty officers and men as nonflying personnel	825

Total, 110 officers and 1,225 men.

Report of the Senate, No. 154, of March 26, 1926, gives the following table of planes and motors built for the navy since 1922:

Year	Landplanes		Hydroplanes		Motors	
	Purchased under appropriation, "Upkeep"	Purchased under appropriation, "New construction"	Purchased under appropriation, "Upkeep"	Purchased under appropriation, "New construction"	Purchased under appropriation, "Upkeep"	Purchased under appropriation, "New construction"
1922	77		40		15	
1923	48	62	69	34	137	240
1924	29	31	42	18	115	205
1925	90	106	47	8		200
Total	244	199	198	60		

The total of planes purchased in four years is thus 701. As stated below, the program for expansion contemplates the life of a machine as two years and has provided that one-half the planes in service shall be replaced annually under the appropriation "Upkeep."

It could be considered that a certain percentage of the planes replaced go to make up an effective reserve.

It is not believed that there is at present an organized naval reserve air force, although one is contemplated.

B. Personnel

Active aviation personnel

Total number of officers (including 159 commissioned, 21 warrant, and 38 staff corps officers)	218
Officer pilots in above total	75
Officer observers in above total	91
Total enlisted men	3,650
Enlisted pilots in above total	130
Enlisted observers in above total	220
Machinists and riggers	1,800
General service	1,500

C. Miscellaneous items

1. Plans for future expansion (building program): Squadrons to be added—38—of which 23 will be in service and 15 in reserve, making a total of 50 squadrons when program is completed, with 35 in service and 15 in reserve.

2. Plans for future expansion (building program): Airplanes to be added—477—new planes exclusive of school planes. Planes in active service to be replaced with new planes after two years' service.

3. Rate at which expansion will take place: Two squadrons per year until 1928; three squadrons per year from 1928–1932; four

squadrons per year from 1932–1938. Program to be completed by June, 1938.

4. Personnel counted upon at completion of program—420 officers: 6,500 men.

5. Number of planes delivered fiscal year 1925–26—261—of which 110 school or planes of servitude.

6. Number of planes to be delivered fiscal year 1926–27—147 hydroplanes and 137 landplanes are contracted for. Not known if entire delivery expected within the year. The types contracted for are as follows, numbers in each type not known:

Bimotor hydroplanes for bombing, Boliath Farman (2 Jupiter motors, 380 horsepower).

B motor hydroplanes, scouting, Latham (2 Jupiter motors, 380 horsepower).

Bimotor hydroplane, scouting, Cams (2 Hispano, 270 horsepower).

Land planes, two seated, pursuit, Levasseur (1 Lorrain, 450 horsepower).

Land planes, two seated, pursuit, Villiers (1 Lorrain, 450 horsepower).

Land planes, three seated, observation, Levasseur (1 Lorrain, 450 horsepower).

Hydroplane, three seated, for fire control, Cams (1 Lorrain, 450 horsepower).

Hydroplane, school, FBA–17 (1 Hispano, 180 horsepower).

Hydroplane, school, Cams, 46 (1 Hispano, 180 horsepower).

NOTE.—Plans for future expansion contemplate a naval air strength of 50 squadrons exclusive of training planes and inclusive of fleet planes which is to be completed by January 1, 1938.

The addition of new squadrons can not be pushed at a very rapid pace until the bases now under construction have been completed. Completion con- [illegible] by 1932.

[illegible]te of completion of bases and fields

[illegible]cipal centers

[illegible] Hydroaviation:

	Per cent
Cherbourg	84
Brest	100
Berre	31
Bizerte	57

[illegible]rise base

[illegible]ation:

	Per cent
[illegible]rque	100
[illegible]	100
[illegible]landrion	0

[illegible]on

	Per cent
[illegible]int Raphael	99

Lighter-than-air stations

Dirigibles:	Per cent
Montebourg	100
Gurpavas	100
Ambagne	100
Cuers	99
Sidi Ahmed	93
La Sema	100
Baraki	98

Captive Balloons:	Per cent
Cherbourg	93
Brest	100
Lorient	100
Toulon	88
Ras el Kram	100

Supply depots

General:	Per cent
Orly	7

Regional:	Per cent
Rochefort	22
Marignane	9
Maison Blanche (Annexe des Mureaux)	14

E. Lighter-than-air craft built

The French report having 13 nonrigid dirigibles, of which 7 are "escorteurs" of approximately 360,000 cubic feet, and 6 "vedettes" of approximately 100,000 cubic feet, of which 4 are in service and 9 in reserve. Also 19 captive balloons, of which 7 are in service and 12 in reserve.

Lighter-than-air craft authorized

Escorteurs (nonrigid) of 360,000 cubic feet	10
Vedettes (nonrigid) of 100,000 cubic feet	16

GERMANY

A. NAVAL

1. Naval notes.

The battleship *Schlesien* will be put into commission at the beginning of January in place of the battleship *Hannover*, which was put out of commission upon completing her last foreign cruise. The *Schlesien* has been thoroughly overhauled and improved as far as the living quarters are concerned.

The large 6,000-ton cruiser "*B*" now under construction at the Wilhelmshaven dockyard, according to the regulations laid down in the treaty of Versailles, will be launced in March. The name of the cruiser has not yet been chosen.

NOTE.—The *Schlesien* and *Hannover* are two of the eight old predreadnought battleships left to the Germans by the Allies. The Germans are, apparently, making the most of what they have, for these old craft are kept in an efficient condition.

Cruiser "*B*" is one of a series of five. The *Emden* (A) is the only one in commission. She mounts eight 5.9-inch guns, four 23.6-inch torpedo tubes, and has a speed of 29 knots. The *Emden* is at present on a world cruise.—Ed.

B. AERONAUTICAL

1. Navigational aids.

[Source: Doctor Georgi, of the Deutsche Seewarte, Hamburg]

Two factors in the province of communication to-day impel the attention of the cultivated world—the inauguration of the first regular transoceanic airship line, Spain to South America, under the direction of the Zeppelin Co., of Friedrichshafen (represented by Doctor Eckener), and the successful return of the east Asiatic expedition of the German Luft Hansa with two Junker planes, the first step in the inauguration of the Berlin-to-Peking air line. England is working at the same time on the development of air connections with India. It is already a generally accepted fact, and one backed by numerous examples, that the superiority of air traffic and its real economic importance only first evidences itself when it is a question of great distances. The admirable growth of the inner European and inner German air traffic during recent years apparently gives the lie to this. For even though a curtailing of the distances to about half the time required by a railroad must make this appear sufficiently valuable in an economic way, this purely mathematical advantage can not be reaped to its full effect in actual practice. Besides the actual time of flight, there must be estimated the loss of time consumed in reaching the business centers from the airports, which can not be reduced and is much more noticeable in the case of short distances than in the case of long ones. It must be fully recognized that great attention is at present being paid to the idea of accelerating the transportation of passengers to and from the airports.

Naturally these difficulties are less evident in the case of large distances of 1,000 miles and more, so that in this regard the prospects for aviation, either with airplanes or airships, must be esteemed altogether favorable. On the other hand, new problems arise as the distance increases, and the extent of the route between every two scheduled stops is also an important factor. Present-day air traffic in the interior is literally tied to the ground. It is therefore comparable to coastwise shipping in its narrowest sense. Position finding is carried out by means of the ordinary topographical charts and the presence of rivers, lakes, and railroads and similar landmarks. This sticking to the ground carries with it two disadvantages: First, sensitiveness to fundamental ground factors; second, low banks of clouds.

Both these factors force the pilot to maintain a lower flight altitude than is desirable as regards safety. Director Brandenburg, head of the aeronautical department of the National Traffiic Ministry, stated last spring at the meeting of the Scientific Aeronautical Society in Duesseldorf that a most important task was to liberate air traffic from the ground, and appealed for the cooperation of all interested circles in the solution of this great problem. The main difficulties lie along three lines, provided of course that the transoceanic and transcontinental air traffic will be conducted in the near future at an altitude of 5,000–18,000 feet instead of at about 500 feet; that is, in the altitudes where neither technical (with reference to flight properties and motor functioning) nor physiological (influence on the pilot and passengers) surprises are to be expected.

(*a*) Determining the altitude in aircraft: Based on the law of decrease of density with the altitude, it is a well-known fact that all quicksilver or aneroid barometers can be used for ascertaining the altitude, and this is the ordinary method in the case of the higher altitudes. However, it is altogether insufficient in cases in which maximum accuracy is required in determining the altitude, that is, in landing in cloudy weather. In this instance it is absolutely indispensable to be able to determine exactly within a few yards the distance from the ground or the surface of the water from about 300 feet on, and for this barometric measurements are absolutely inadequate. An alteration in pressure of 1 millimeter Hg corresponds to a change in altitude of approximately 30 feet. If the air pressure on the ground has altered 5 millimeters between the start and landing, this means an altitude of more than 150 feet. However, it is technically impossible to keep the pilot of a plane continually "au courant" regarding the ground density at all points along this route. Besides this, the person measuring the altitudes barometrically never measures the difference in altitude between himself and the point over which he has just flown, but between himself and a surface of equal density which usually corresponds to the sea level or the altitude of the point of departure, which embodies great danger in landings on terrain whose altitude is unknown. Therefore, in the course of recent years, numerous attempts have been made to develop a nonbarometric system of measuring altitude for use by aircraft. One of these is based upon the fact that a plane, together with the ground surface located at a certain distance from the plane, forms an electric condenser (after the nature of the Leyden jar) whose capacity varies with the distance involved. The most successful of nonbarometric systems of altitude measurement is a German invention which is the envy of all foreign countries—that is the Behm aero sounder. As is known, Alexander Behm was the first since 1912

to study the reflection of sound in water by means of ingenious test arrangements and he founded his echo sounder for water sounding on this. As far as is known, the work of the different American manufacturers of sounders is based on this fundamental work of Behm. By slightly altering the indicating mechanism, it is possible to make soundings in the air from 300 feet down to the ground, even in the case of uneven terrain, and above the highest hills, rocks, trees, or houses. Practical results have also been attained with airplanes in the tests conducted by the German Experimental Aeronautical Institute at Berlin-Adlershof. With the inauguration of this apparatus, landing in fogs and low-lying clouds loses its terrors from a technical point of view.

(*b*) Position finding in aircraft: Besides the ordinary methods of astronomical and terrestrial position finding for which special measuring apparatus (Schwarzschild level quadrant, etc.) have been constructed, there are the methods of direction finding by wireless for use in cloudy weather. Even during the war, the position of our naval airships was determined by radio-direction finding. Direction finding in the planes or ships themselves was first employed in the *LZ–128* with the Telefunken Co.'s direction finder. With proper application and use of this method, it would appear possible to navigate over extensive transoceanic and transcontinental routes out of sight of land, perhaps even without astronomical position finding, not exceeding, however, an altitude of 10,000 feet. At low altitudes, such as when preparing to make a landing, navigation can be assisted by the aero sounder in that, for instance, in flying over the coast, crossing a river valley, etc., the formation of the terrain can be ascertained in the same way as it done in the case of the ocean bottom by means of soundings. However, we still lack a simple method by means of which an airplane at a distance of about 5 to 12 miles can be informed of the exact location of the airport during a fog or low-lying clouds, the method of the guide cable appearing much too complicated for this. The new ideas underlying the construction of the Ludolph compass appear to be peculiarly adapted to aircraft. According to present experiences, they insure a holding of the course even when one-sided torsional moments arise through meteorological causes, special maneuvers of the pilot, or during a long flight in fog, which formerly caused the much feared "rolling" of the airplane compass.

Man's sense of equilibrium fails him in an airplane, for physiological reasons, when the plane is in the midst of clouds. If in a curved flight, a slipping to the outside or inside is threatened. This is the field of the gyro inclinometer (Drexler steering indicator, and the Anschuetz aeronautical horizon gyrorector) in which the

nonvisible horizon is replaced by the plane of rotation of a rapidly rotating gyro, which is to be considered as stationary for short periods of time. However, the stable position of the airplane in space can not be unequivocably determined by the inclination to the horizontal plane but it is largely dependent on whether the plane is flying straight or on a curve. In order to determine this, in the newer types the indications of the gyro are combined in a suitable way with the deflection of a water tube level, which reacts not to the absolute position of the airplane, but to the resultant of gravity and centrifugal force. It is then possible for the pilot to hold the plane stable even in the midst of clouds.

This very brief résumé shows that the technical navigational aids for transoceanic and transcontinental flight out of sight of land already exist and are to be had at the present time, or will soon be available. Only by liberating the plane from the ground can the full advantages of air traffic become evident as compared with other systems of communication. It is also the meteorological service which can render the great achievements of synoptic meteorology and aerology fully productive to air traffic.

(NOTE.—See articles under "Argentina" in this bulletin for notes on the Spain-South American airship route.—ED.)

C. MISCELLANEOUS

1. Summary of German naval and military strength.

[The following is extracted from a recent "combat estimate" prepared by M. I. D.]

MOBILIZATION

The Versailles treaty prohibits all reserves or machinery for mobilization. Many signs indicate, however, that steps have been taken to prepare for mobilization.

Among these signs is the fact that the pre-war regiments have been coordinated with the postwar organizations, the latter to be the custodians of the traditions and ideals of the older units. It is apparent that this measure, emphasized and advertised as it is by the War Ministry publications, is an efficient factor in furthering a prompt mobilization, at least while the war-tried officers and soldiers remain available for combat and training. Also the quasi-military societies, composed of young men, notwithstanding their very elementary and insufficient training, are factors which permit secret preparation for mobilization and which further prompt organization in case of war.

The present close-knit organization of German industry, its discipline, and efficiency will aid materially in industrial mobilization.

The high development of civilian aviation and the chemical industry are important factors facilitating the rapid adjustment of the country for war.

The present occupation of the Rhineland by foreign troops prevents mobilization in that area and could be made to seriously affect adjacent areas, especially the very important industrial area of the Ruhr.

Given the veterans, militarily trained police, and members of military societies, it is apparent that Germany could mobilize a force up to at least 2,000,000 men. But since the munitions factories have been converted to peace-time production, the military reserves of munitions destroyed, and further manufacture or import prohibited, it is seen how difficult the equipment and supply of any large force would be. The number mobilized, then, is directly dependent upon the number which could be equipped and supplied.

It is estimated that two armies (650,000 personnel) could be organized in a month. This increased force would be lacking in auxiliaries such as artillery, tanks, aircraft, and gas. There would also be for a short period a lack of uniformity as regards clothing and equipment.

NAVAL STRENGTH

The Versailles treaty reduced the German Navy to 15,000 men, inclusive of 1,500 officers and warrant officers, and the number of ships to 6 battleships in commission and 2 in reserve; 6 cruisers in commission and 2 in reserve; 12 destroyers and 12 torpedo boats. In addition there are a number of old mine sweepers, some in commission and the rest in reserve. New ships constructed to replace those in commission should not exceed, for armored ships, 10,000 tons; light cruisers, 6,000 tons; and destroyers, 800 tons.

No air service or submarines are permitted.

Restrictions as to length of service are the same as for the army.

There are two stations—the North Sea (base, Wilhelmshaven) and the Baltic (base, Kiel), each including marine artillery divisions. The following vessels are about equally divided between the two stations: 4 battleships, 2 cruisers (2 others on foreign cruise), and 2 torpedo-boat flotillas. The land forces are composed of 6 marine artillery divisions, 2 signal corps companies, and 2 training depots, divided between the two stations, with a total fixed strength of 4,818.

(NOTE.—See the February Bulletin for further information on the marine artillery divisions.—ED.)

Efficiency and morale: Discipline, training, and morale are very good.

CONCLUSIONS—PRESENT SITUATION

Germany is gradually recovering from the weak military, economic, and political situation resulting from the loss of the 1914–1918 war. During 1926 her army has made great improvement in training, efficiency, and morale, though not in armament. The vast expansion of civil aviation has added greatly to her war potentiality. Economically, industries have become much stronger and the balance of trade has turned in her favor. Politically her position has been greatly improved and the prospects of continued peace have been strengthened by the conclusion of the Locarno agreements and Germany's admission to the League of Nations. This has also tended to greatly strengthen the foreign policy.

German sovereignty, however, is still under the following restrictions: Occupation by foreign troops of the Mosel and Saar Valleys and occupation of the Mainz bridgehead; internationlization of the Kiel Canal, Elbe, Oder, Niemen, and Danube Rivers; reparations obligations under the Dawes plan and London agreement, with the consequent foreign supervision of the economic life of the country; restriction of the size and composition of the army and navy, and of the munitioning capacity; supervision of its military establishment to insure the execution of the disarmament provisions of the Versailles treaty.

NOTE.—Since the above was written a portion of the troops of occupation have been withdrawn, supervision of the disarmament provisions of the treaty has been turned over to the league. All this on account of the Lacarno pacts and Germany's entry into the league.—ED.

Public sentiment is keenly alive to the present inability of the country to make war alone without incurring very heavy losses both of men and property. At the same time there has been a material development or patriotism and a sense of solidarity among the people. The feeling that Germany has been greatly wronged by the Versailles treaty and that these wrongs must be righted by peaceful means, if possible, otherwise eventually by force, has been strengthened during the past year.

FUTURE SITUATION

Germany, although at present a weak military power, owing to her small army, restricted armament, and lack of organized reserves, is not in a hopeless military situation. When the Allied Military Control Commission is removed (set for January 31, 1927), she will be able to improve her situation and can be counted on to spare no efforts in this direction. Both the Government and the people can be

counted upon to direct their efforts to secure a return of the lands lost—certainly on the East—as a result of the war.

(NOTE.—The Allied Military Control Commission has been withdrawn and the duty of investigating German compliance with the treaty has been taken over by the league. Coincident with going to press, the German foreign minister announces that he will press the league for a complete evacuation of the Rhineland by allied troops. Article 431 of treaty of Versailles authorizes the evacuation when Germany observed all of the stipulations of the treaty, espepecially disarmament.—ED.)

GREAT BRITAIN

A. NAVAL

1. Naval guns.

In the February BULLETIN there was published an article from the English press regarding the new 16 and 8 inch guns of the British Navy but little specific information was given. Since that time there has appeared in various English periodicals more detailed notes on these guns, which notes are summarized as follows:

The 16-inch gun mounted in the *Nelson* class is of the familiar wire-wound type. It has a muzzle energy of 93,230 foot-tons. The shell weighs 2,240 pounds. One source states the muzzle velocity to be 2,630 foot-seconds. It has a penetrative power of only 1 inch more than the 15-inch gun, or, 57 inches of wrought iron at the muzzle. The charge consists of 580 pounds of cordite. A loading interval of 30 seconds is expected. The gun weighs 117 tons. Previous figures had stated this gun to be of 50 calibers, but this more recent information agrees that the length of the gun will be 60 feet or 45 calibers. The 1926 "Jane's Fighting Ships" gives the caliber at 50, the weight at 103 tons, projectile weight at 2,340 pounds, and the muzzle velocity at 2,953 foot-seconds, but these figures are believed to be erroneous.

The 8-inch gun being mounted in the new 10,000-ton cruisers will fire a projectile of about 250 pounds with a muzzle velocity "slightly greater" than the 7.5-inch gun. (The 7.5-inch fires a 200-pound shell with a muzzle energy of 11,259 foot-tons.) It is expected that these guns will penetrate nearly 40 inches of wrought iron at the muzzle and will fire 6 rounds a minute.—ED.

2. Submarine notes.

[Source: English press]

The first submarine flotilla, which is accompanying the Atlantic Fleet on its cruise, has now been joined by *X–1*, our largest submarine. Although completed three years ago, *X–1* has been en-

gaged in experimental trips ever since she was commissioned, and this will be her first tour of fleet service. She is quite the most remarkable submarine afloat. Her surface displacement is 2,780 tons, and her submerged displacement 3,600 tons. Not only is she the size of a small cruiser, but she has as many officers as a small cruiser, and she can remain under water for very long periods.

Another remarkable boat in the first flotilla is submarine *K–26*, the next largest to *X–1* on active service. A couple of years ago *K–26* made an independent cruise to Singapore and back. That was at the time the longest independent voyage a submarine had ever made. It remains a record unless *X–1* has beaten it during her three years of experimental trips. So far as *X–1* is concerned, she easily holds the record for being the longest period "on trial" of any British boat. This lengthy program of test runs is due to the fact that *X–1* was an experiment, and the Admiralty have been using her to obtain data for their guidance in designing future underwater craft.

NOTE.—The *X–1* mounts four 5.2-inch guns and six 21-inch torpedo tubes and has a reported speed of 22 knots.—ED.

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3. H. M. dockyard, Chatham.

This dockyard is a fully equipped building and repair establishment, but there is not sufficient water to receive modern battleships, and vessels up to and including cruisers are, therefore, the only ones repaired or built there. It was necessary to extend the building ways in order to lay down H. M. S. *Kent*, and a ship of that size is about all the yard can undertake. Effort is made to retain a depth of 31 feet of water in the basins, which are of the lock type, and the battleship *Centurion* is lying in one of them now, but this depth is not considered sufficient for modern battleships in their fully equipped condition. The *Centurion* is being packed with cork in a great many of her compartments, in the course of her conversion to a target ship to replace the *Agamenon*.

There is a cosiderable number of ships, particularly destroyers, now undergoing repairs or general refit at the yard, and about 7,000 dockyard employees are at work.

The aircraft carrier *Argus* appears to be practically completed after her long refit and she does not appear outwardly to have experienced any noticeable changes. It is expected that the *Argus* will leave the yard next month to joint the Atlantic Fleet.

It was stated that the *Kent* had been considerably delayed in construction by the inability to obtain steel during the coal strike, and the vessel is in a very unfinished state now, with turrets not installed and completion must be still considerably in the future. Even now,

much difficulty is still being experienced in obtaining deliveries of steel.

The submarine *Oberon* is lying at the yard and her trials are nearly finished.

The destroyer leader *Bruce* and five of the destroyers of the eighth flotilla are fitting out for full commission, the other three being at Sheerness. This flotilla is being prepared to proceed to China in case of need, but definite sailing orders have not been received.

The monitor *Marshal Soult* is lying at the yard in reserve, as senior officer's ship of the reserve fleet.

In general, the dockyard gives one a favorable impression. After Sheerness, Chatham would probably be the next yard to be closed if the policy of economy should necessitate such drastic action. The local political influence in support of the Chatham dockyard is very strong, and it seems very improbable that the Admiralty would undertake to shut down the yard, even if it should so desire, for the opposition that was raised by similar action at Rosyth and Pembroke must still be very fresh in their minds.

The town of Chatham and the other neighboring towns are vitally dependent on the continuance of the dockyard, and other naval activities nearby, which constitute in all a naval port with much fine and highly cherished tradition back of it.

NOTE.—The *Kent* is one of the new 10,000-ton cruisers. *Centurion* was recently stricken from the active list in accordance with the Washington treaty. She mounted ten 13.5-inch guns. The *Argus* is an old aircraft carrier. She corresponds closely to our *Langley* in both size and appearance. The *Oberon* is a new submarine of 1,480 surface tons.—ED.

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4. Gunnery school, Chatham.

This school has existed for many years, but was considerably extended when a similar institution at Sheerness was closed down and its activities transferred to Chatham. It now is located in a number of small buildings immediately adjacent to the naval barracks where all the personnel are housed.

It is believed that no important changes have occurred there for several years and complaint was made that it is not kept very well supplied with the latest developments in ordnance.

It consists of the usual layout of guns of various sizes up to and including 6-inch mounted in service fashion, on the ground floor of one of the buildings where are also mounted sections of the breech and breech mechanisms of a 12-inch gun and a 15-inch gun. These guns and mechanisms are evidently used for instructional purposes, disassembling and assembling, etc. On the upper floor of this building are located lecture and study rooms and rooms for instruction in fuses, primers, etc.

In another building are a number of guns fitted with excaliber attachments for Morris tube practice, and others with dotter gear. There is also an indoor rifle range in this building which is used for training purposes and which is also available to the personnel of the barracks as a form of recreation, the men being obliged to pay a very small sum necessary to cover the cost of ammunition.

In another building is a layout for fire control and spotter training, both for day and night firing, and for antiaircraft firing as well as against surface targets. The antiaircraft spotting training system is not elaborate but clever in its arrangement of reflecting mirrors by which there is projected on an overhead screen an image of a miniature airplane, and an image of four shrapnel bursts, both of which images can be made to move at will. There is also a small battery of guns outside of the building, which evidently can be made to enter into the complete form of fire-control training.

A range finder is mounted at the school and training is given in range taking, but it is said that this is not very beneficial, as there are no means of producing the vibration which is so serious an obstacle to accurate range taking aboard ship.

There is a light sheet metal reproduction on a large scale of an old type of turret, in which a dummy gun was mounted and which functioned in all respects similarly to a service turret, including the ammunition hoists. This turret and its gun and gun mounting are now so obsolete as to be unfit for further use, and turret drill for those under training is conducted in the 15-inch turret of H. M. S. *Marshal Soult* (monitor) which is lying at the dockyard.

Provision is made for instruction in all forms of ordnance and gunnery subjects, including explosives, magazines, etc. There is training also in antigas measures. Loading machines of several calibers are available for loading drill. A directorscope is mounted somewhere at the school but opportunity to see it was not furnished. Small arms instruction is given and the standard musketry courses are fired on a rifle range near Sheerness. At this range, in the summer time, a regular permanent camp is established, where the firing details remain during their practice.

There are about 300 men undergoing training at the gunnery school in the various courses, these men being those who have been selected in the fleet for their first gunnery training, and others, principally petty officers, already qualified, who are taking their "refresher courses," which are given at intervals of about five years, when practicable. Also, all "new entries" ordinary seamen under training at the naval barracks are given a very short and elementary course of instruction at the gunnery school, but these are not included in the number mentioned above.

The gunnery school at Chatham is smaller than that at Devonport and very much smaller than the one at Whale Island at Portsmouth. Whale Island controls to a certain extent the policies and curriculum at the other gunnery schools, and is the one to which most gunnery subjects are referred by the Admiralty, though the dockyard at Chatham sometimes calls upon the gunnery school there for opinions on subjects that arise in connection with the work on ships. There is a constant interchange of information between the three major gunnery schools ashore, and uniformity of training is thus insured.

The gunnery school at Chatham gives training to the men from Chatham-manned ships, and as the number of such ships is less than those manned from Portsmouth and Devonshire, the gunnery school is accordingly smaller also.

At Chatham no gunnery training is given to commissioned officers, though warrant officers receive instruction there. Practically all commissioned officers who specialize in gunnery are sent to Whale Island, and details to duty of gunnery officers, both afloat and ashore, are largely based on the recommendations of the commanding officer at Whale Island.

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5. Mechanical-training establishment, Chatham.

This establishment has increased in importance recently because of the decision to distribute some of the training of boy artificers to other establishments, that previously had been carried out exclusively at H. M. S. *Fisgard* at Portsmouth. Two hundred of these boys were recently sent to Chatham after about two and one-half years at H. M. S. *Fisgard*, and they will remain at Chatham for two years before going to sea at all. This total of four and one-half years is slightly less than the apprentice in civilian life requires to complete his training under union regulations, and the graduates of the establishment must then receive their training as operating engineers on board cruising ships. They receive a certain amount of military training at Chatham, being quartered in the Royal Navy barracks, where they also acquire some familiarity with the requirements of shipboard life.

While receiving the usual technical courses at the military training establishment, they are given some training also in the dockyard shops, where they can use the machine tools, provided it is only for training and not in a productive capacity in competition with dockyard labor. They also do some work on ships under refit.

There are also a number of men taking "refresher courses" at the military training establishment, largely engine-room artificers (corresponding to our machinist mates), and a few stoker ratings endeavoring to qualify as artificers. Successful cases of this nature are rare.

and the stoker's advancement is almost invariably to mechanician grades (corresponding to our enginemen), if a transfer from the stoker branch is made at all.

In all, there are about 400 petty officers, men, and boys undergoing training of different sorts in the military training establishment.

This establishment is independent of the stoker training establishment which is located near by, both being situated on land of the dockyard. The stoker's training establishment is given over almost exclusively to the training of "new entries" who have just enlisted for a short-term (seven-year) enlistment as stokers. They receive also military training and instruction in the care of their clothes, etc., at the barracks, and go to sea for their final training after about five or six months at the depot.

It is said that frequently these lads, aged about 18 years, on applying for enlistment, really desire to become seamen, but take on the stoker rating as a second choice when the quota of seaman branch ratings that are allowed to be recruited has been reached. Transfers from one branch to another after entering the service are rare and not encouraged. The decision, which is practically binding for the whole period of enlistment, must be made at the recruiting station before the candidate for enlistment in some cases has any means of forming an opinion as to where his preference would really lie.

The mechanical training and the stoker's training establishments at Chatham make up the second largest center of training for engine and fireroom duties in the British Navy, the largest institution being H. M. S. *Fisgard* at Portsmouth and a similar one at Devonport, being smaller than that at Chatham.

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6. Royal naval barracks, Chatham.

These barracks, with their accompanying administration, recreation, and stores buildings, constitute what is familiarly referred to as the "depot," where all naval personnel in the vicinity are housed and cared for. The property is immediately adjacent to the dockyard and the barracks are available to personnel of ships when the nature of their refit requires quartering of the crews ashore. Practically all of the crews of the submarines at the dockyard always live at the barracks.

The buildings and other facilities of the depot are adequate, suitable, and well arranged. They are capable of accommodating 8,000, and a war-time "camp," made up of temporary buildings, can take 1,000 additional. They are well equipped and well kept. The grounds are fine and great attention is given to the welfare and contentment of the men. On the whole, it is not felt that the depot

is superior to our major training stations, though it serves, of course, a much wider purpose.

There are three so-called blocks of buildings in the naval barracks, the Duncan, the Anson, and the Nelson blocks, each complete in itself; but only half of one of these is required for the number of recruits under training, the relative importance of the several uses of the depot being thus indicated.

There are about 800 recruits now under training, including about 200 boy artificers received from H. M. S. *Fisgard* and receiving further training at the mechanical training establishment. The remaining 600 are mostly ordinary seamen and stokers, second class, though there are a small number of the lowest ratings in the various other branches, all having recently enlisted for short-term enlistments (seven years plus five years in the reserve), and being under their first training.

Another block is given over to petty officers and chief petty officers who are awaiting draft or undergoing instruction at one of the schools. There are at present about 200 of these, for whom about 90 messmen are allowed. These petty officers and chief petty officers are allowed to run their own mess, have their own beer bar in their quarters, and are given more space and many more conveniences than the men and boys. They have the Nelson block, which is recognized as the senior one. It is interesting to note the British custom of merging petty officers with chief petty officers in such matters, and the same association is maintained aboard ship where petty officers do not mess with the men as in our service. The leading seamen and leading stokers and corresponding artisan ratings take the place in this respect to our third-class petty officers.

The remaining block and half block of the barracks are given over to men awaiting draft, attending courses of instruction, belonging to ships under refit, and the complement of the depot itself. Of these, the half block is largely taken up by ordinary seamen and stokers second class, who have finished their training and are awaiting assignments to sea.

In all, there are at the depot now about 4,800 men distributed roughly as follows: 800 new entries, including boy artificers; 900 petty officers and chief petty officers (plus 100 messmen), and 2,000 men awaiting draft; 300 at the gunnery school; 200 at mechanical training establishment (in addition to boy artificers); 400 in the depot complement; and 100 from submarine crews.

The large number of men awaiting draft seems most noteworthy. Many questions were asked as to its cause, and the subject was repeatedly raised, but it apparently was not considered an excessive number or a matter of concern or particular interest. It is apparently due to many causes, of which the practice of frequent commis-

sioning and decommissioning of ships is perhaps the most important, necessitating a large reserve of available personnel. Also the restriction on the freedom of assigning men from ashore to the fleet caused by the policy of sending them only to ships whose entire crews are drawn from the same depot, must account for frequent delays in transferring men to sea. Furthermore, in the long enlistment period in the British Navy, it is evidently felt that men are entitled to periodic spells at a depot in order to maintain their contentment and morale. The men-days, to speak, that must be wasted in the course of a year at such a depot seem very large, however, from our point of view, as they are not used for much except working parties, and get leave three days out of four.

The training facilities for the new entries are very similar to our practice and no features of particular interest were observed. The course usually lasts about five months and they are then subject to draft to any Chatham-manned ship (not to special ships, now the *Iron Duke* class, as in the case of boys from Shotley and H. M. S. *Impregnable*). These new entries under short-term enlistments are given leave only until 11 p. m. until reaching the age of 20, and thereafter are granted overnight leave or week-end leave only if their parents assume the responsibility for looking out for them.

At the time of this visit, with about 4,800 men on the rolls, there were no absentees, only two men in confinement, and about 30 undergoing minor punishments, which seems to speak well for the state of discipline existing. Great pride is taken by the men, and more particularly by the petty officers and chief of petty officers, in their home depot, and there is apt to be a keenness of rivalry which leads to bad feeling between ships of a fleet whose crews are drawn from different depots. The three main depots at Devonport, Portsmouth, and Chatham furnish men of quite different characteristics to the fleet, requiring somewhat different treatment by their officers. On an average, however, they are believed to be about equally as good material for the naval service.

The Admiralty is most specially careful to see that men when away from their ships are always at the depot at which they were first enrolled, going to great expense and infinite pains to give the men this assurance of permanency in their shore base. Considering Chatham, for example, though battleships must go to the bigger yards for refit, the Chathan-manned ones always come as near to Chatham as they can reach, an anchorage off Sheerness, for the periodic leave periods for their crews. All this attention to the interests of the enlisted personnel is very conspicuous and is undoubtedly productive of much contentment, though attended by many administrative difficulties and a certain amount of wastage of the services of the men.

The canteen and recreation building and the recreation grounds, available for the use of all the personnel on the depot, are exceptionally good.

There is an officers' mess at the barracks which is patronized by the great majority of unmarried officers and those whose families can not be with them at the time. It is, so far as its facilities permit, open for officers from ships at the dockyard and is in effect a well equipped and delightful gentlemen's club.

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7. Royal naval hospital, Chatham.

This hospital is the largest and best one in the Royal Navy and seems to be a very well planned and equipped institution, though the buildings themselves are not very modern, having been completed in about 1905. The hospital is located in charming grounds and has all the usual means for handling sickness and injuries of all characters. The contagious wards are entirely separate buildings.

The capacity of the hospital is about 1,000 beds and there are now about 400 patients there, which is rather larger than normal because of the mild epidemic of influenza in England.

The hospital is available for army and air force personnel and receives a number of patients from officers on duty at the Admiralty when in need of treatment and able to stand the journey to Chatham.

The dependents of naval personnel can not be admitted or treated at British naval hospitals but dependents of army personnel can be cared for at naval hospitals as well as, of course, at army ones. This anomaly is a source of some discontent and a good deal of amusement, but there does not appear to be any concerted attempt to obtain a change in the regulations.

Female nurses are employed at the naval hospital at Chatham, and they have a very nice building for their quarters. There is also an officers' mess in the hospital grounds as well as quarters for three officers.

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8. H. M. dockyard, Sheerness.

The dockyard at Sheerness is small but compact and conveniently arranged. It can handle nothing much larger than destroyers and the bulk of its work consists in repairs to that type of vessel and to sloops, submarines, lighters, tugs, and miscellaneous small craft. There is one basin of lock type there where sufficient depth of water can be maintained for such vessels, but the other two basins are of the open type and there is so little water in them at low water than nothing but lighters and flat-bottom craft can safely be berthed there.

It is considered that good work is done at Sheerness within its capabilities and the yard gives the impression of being capable of considerable and rapid expansion in case of emergency. It was very active during the World War and is considered to be of value in the sense of preparedness for war, though its limited scope, with probably excessive overhead expenses and its immediate vicinity to Chatham, must make of it a rather extravagant peace-time activity.

In case of further reductions in dockyards, undoubtedly Sheerness would be the first to go and statements have been heard to the effect that the Admiralty is anxious to sell it but can find no bidders for the property. This is unconfirmed, however.

There are about 2,000 dockyard employees now at Sheerness and only about 30 naval ratings. A small depot for naval ratings is located in the dockyard but at present it is closed, as is the Admiral's house. Except for the rifle range nearby, the former gunnery school activities have all been transferred to Chatham and no training of naval ratings is carried on at Sheerness now except at the rifle range. There is a fair amount of activity at the yard now, which is said to be about its normal condition, but there were no vessels at the buoys in the river off the dockyard except submarine *X–1*, about which nothing of interest could be seen at that distance, though her unusual size was conspicuous.

Chatham-manned battleships come to the buoys off Sheerness during leave periods for the crew. These buoys where there is sufficient water for battleships are some distance from the dockyard and boating is often disagreeable when the wind is against the tide. Sheerness itself is inaccessible and there are few attractions there. Consequently, the experience of ships lying at the buoys there is not a pleasurable one for the officers, yet regard for the interests of the men in returning them to their home port is paramount.

B. AERONAUTICAL

1. Passing of the "Bristol Fighter."

The Air Ministry has ordered a certain number of new two-seater fighting aircraft, known as the Armstrong-Whitworth *Atlas*, for extended trial as army cooperation machines, and while no decision is likely to be made yet the inference is that this is the first step to the passing of one of the most famous British aircraft of the war. This is the *Bristol Fighter* two-seater aircraft, which, first produced in 1916, is still to-day the standard equipment of 11 Royal Air Force squadrons situated at home, in Egypt, in Iraq, and in India. Only one other fighting aircraft, the De Havilland *9–A* has a com-

parable record, but probably the *Bristol Fighter* has had the longest continuous life as a type, for the De Havilland range started with the *DH–4*, and was subsequently superseded by the *DH–9* and the *9–A*, the last still in service.

Like many another war machine, the *Bristol Fighter* arrived in the theater of war just at the right time, and in the early part of 1917 there was a wholesale reequipment of squadrons engaged on offensive and defensive patrols and long reconnaissance. The old *FE–2B*, a two-seater airplane with the air-screw behind the main planes in between two sets of tail booms, had done invaluable work in maintaining British supremacy, but it was becoming outclassed by the rapid advances in technical equipment, and it suffered from the difficulty of defense against attack from the rear.

The advent of the *Bristol Fighter* changed all that; with its fixed gun forward firing through the propeller and a movable gun in the observer's cockpit aft, combined with a very fine speed for those days of about 120 miles an hour and an ease of maneuver far in advance of anything then achieved, it almost immediately reestablished British superiority in its particular class. Pilots, feeling this fast and thoroughly responsive machine under them, tackled their difficult job with renewed zest and higher spirits. No one had ever looped an *FE–2B*, at least not officially, and the *Bristol Fighter* could not only be looped, but it also permitted many of the maneuvers now classed as aerobatics, all of which were exceedingly useful in maintaining moral supremacy over the enemy.

Meanwhile, the makers of the engine used in the *Bristol Fighter*, the firm of Rolls Royce, had been doing their part, and starting with a horsepower of 190 the *Bristol Fighter* gradually was given more and more horsepower until, with the Rolls Royce *Falcon*, the pilot had something like 250 to 275 horsepower at his disposal. When the war ended, the *Bristol Fighter*, or *Brisfit*, as it came to be known, was delegated to the task of army cooperation, and as such it has maintained itself until this day, despite various efforts to produce a new design of such outstanding merit that the air council would be bound to consign it to oblivion. More equipment was loaded on to it and modifications were introduced, so that it was able to do much useful work in the disturbed frontier areas of the empire. It is inevitable, however, that it must give way to machines designed more in accord with modern requirements, and the fact that at last a possible successor is to be given extended trials means that its replacement is now under serious consideration.

Its companion, the *DH–9A*, is likely to be the next of the war veterans to be the subject of serious inquiry, and when these two types disappear there will not be a war-time airplane left in the active service of the Royal Air Force.

2. Strength of Royal Air Force:

(*a*) Strength of Royal Air Force: 3,372 officers, 103 cadets, 28,556 airmen. In addition there are 45 naval officers (marine observers) and 422 naval ratings attached for duty with fleet air arm (F. A. A.) units.

(*b*) Strength figures at (*a*) include 2,644 officers (108 naval officers for fleet air arm), and 103 cadets of general duties (G. D.) branch, 169 airmen pilots, and 102 airmen under flying instruction.

(*c*) Total personnel serving with school of naval cooperation, bases, carriers, and flights at bases and afloat:

	Officers	General duties	Marine observers	Airmen	Naval ratings
Fleet air arm units	145	141	45	467	422
Other than fleet air arm units	183	157		1,751	
Total	328	298	45	2,218	422

(*d*) Total personnel serving in administrative units in coastal area and Mediterranean group:

	Officers	General duties	Airmen
Coastal area (area headquarters and headquarters No. 10 group)	39	27	109
Mediterranean group (headquarters)	10	7	19
Total	49	34	128

(*e*) Total personnel serving under coastal area command engaged on other than purely naval duties, 52 officers, 33 general duties, 521 airmen.

(*f*) Total personnel in general service and with navy:

	Officers	General duties	Marine observers	Cadets	Airmen	Airmen pilots	Airmen under flying instructions	Naval ratings
In general service	2,995	2,312		103	26,210	169	102	
With navy (see *c*)	328	298	45		2,218			422
With navy (see *d*)	49	34			128			
Total	3,372	2,644	45	103	28,556	169	102	422

(*g*) Number of civilians and natives serving in service units:

	Industrial	Nonindustrial
Civilians	3,357	609
Natives	5,487	366

Unit of organization: Land aircraft, squadron; naval aircraft, flight.

Aircraft in unit of organization: Single engine squadrons, 12; twin engine squadrons, 10; naval flight, 6.

Total number of units September 30, 1926: General service, 50½ squadrons (including army cooperative squadrons); naval purposes, 20 flights.

Locations of squadrons: Home, 32 squadrons, 11 flights; abroad, 18½ squadrons, 9 flights.

Strength of aircraft by types: Land aircraft—Fighters, 144; S. E. B., 240; T. E. B., 80; Army cooperative, 123 (including flight at Aden). Naval aircraft—Fighters, 36; torpedo, reconnaissance spotter, 80.

Total number of aircraft in service squadrons and flights, 703.

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3. Cierva autogiro.

A visit was made to the Worthy Down Aerodrome (near Winchester) for the purpose of witnessing a trial flight of the Cierva autogiro. This visit was made at the invitation of Senor de la Cierva, who was present at Worthy Down in company with Capt. Frank T. Courtney, pilot and technical manager of the company formed for the development of the autogiro.

The machine that was viewed had the "windmill" mounted on the Avro training fuselage, similar to the previous machines with the exception that the machine was equipped for the carrying of a passenger, eventually to have dual control. It was engined with a 130 horsepower Clergot rotary engine.

The length of the wing from the center of the central supporting shaft to the wing tip was 19 feet; the width at the widest portion being 40 inches. The wing was built on a single spar to which was directly attached the fitting for securing the wing to the rotating bearing which absorbs the upward thrust on the central shaft. The method of attaching the wing has been slightly varied from the previous machine.

For the purpose of giving the wings the necessary rotation on the ground preparatory to a flight, the previous machine had hooks for the attachment of ropes fitted on the under side of each wing spar, approximately 5 feet from the central supporting shaft. The present machine had, instead of the hooks, a triangular shaped fitting with a groove at its longer and outer edge. The machine had a short fixed wing at the bottom of the fuselage over the landing gear fitted with ailerons. A noticeable feature of the machine was the extremely wide tread of the landing gear which consisted of two of the usual Avro wheels located approximately under the center of gravity of the machine. The need of such a wide tread was explained by the fact that the very low landing speed made the machine easily affected

by side winds which might cause it to capsize by an unexpected sidewise motion as it took the ground with the usual type of landing gear.

The machine was not flown at the time of inspection as there was a ground wind of about 25 miles per hour. The pilot stated that he was not satisfied with the adjustment of the central supporting shaft, and he did not wish to take the machine off when he would not be able to tell whether the transverse tilt of the machine was due to wind or due to maladjustment of the central supporting shaft. As the wings in flight do not maintain a strictly horizontal plane, it is necessary to give the supporting shaft an angular adjustment from the vertical in the thwartship plane in order that the fuselage will be reasonably horizontal thwartship under normal conditions. The original flights were made with an angular adjustment of 4° which was apparently too much. Subsequent flights were made at 2° which appeared to be too little, and the present machine had the shaft adjusted at an angle of 3°. The pilot was anxious to have the shaft correctly adjusted when going up in a wind. The end of the supporting shaft is secured by through bolts to a thwartship member attached to the fuselage. A number of holes are provided in the thwartship member to allow the shaft to be shifted from one position to another.

In respect of the pilot's disinclination to fly, one of the members of the Cierva staff present stated that another difficulty encountered with the machine was that with the type of wings sketched above, the angle of the wings in flight seemed to be excessive; in other words, they seemed to have a tendency to fold up.

The machine was wheeled out of the hangar onto the apron in front of the hangar, wind approximately 25 miles per hour. With a very slight initial start the wings commenced to revolve at a fairly high rate of speed, estimated at about 40 revolutions per minute, exerting a manifest lift on the machine. The wings, which were moving into the wind, lifted to a marked degree, and in reaching a point approximately 60° away from the wind settled abruptly against the topping-lift arrangement which supports them at rest. The wings made a considerable noise when they came down against the slack of the topping lift, and it was noted that the pilot, who had had considerable experience with the autogiro, abruptly took refuge in the hangar, apparently fearing that something had gone wrong with the apparatus. This incident is quoted only to show that there is a feeling that a great deal is not yet known about the autogiro.

A visit was made to the Avro Experimental Works at Hamble to inspect an autogiro under construction there. This machine has been termed "Viper" from the name of the 210-horsepower Wolseley 8-cylinder, V water-cooled engine installed. Senor de la Cierva

stated that the machine at Hamble was the first real autogiro, because it was built for the purpose of an autogiro and was not the adaptation of an existing fuselage to the autogiro. The center of gravity of the machine is materially lower than the machine seen at Worthy Down. The supporting shaft is fitted with a worm adjustment so that it can readily be changed in flight by means of a crank. The lower wing had been omitted entirely, though ailerons are fitted. The landing gear is similar to that of the machine seen at Worthy Down, but is placed slightly forward of the center of gravity so that the machine can be tipped forward or backward by the pilot at will when the engine is running. One landing wheel had been fitted forward under the nose of the machine in such a manner that it could be turned by the pilot by means of a rudder bar so that the machine could be steered on the ground.

It has been found desirable to devise some means to control the rotation of the "windmill" after the machine has landed and at other times on the ground when it might be necessary. This is expected to be accomplished by giving the machine a tilt forward to increase the resistance of the wings sufficiently to slow them down.

Subsequent to the visit at Worthy Down and at Hamble, it has been learned that no successful flights were made with the machine as equipped at Worthy Down. The machine has been returned to the factory. It is also understood that the type of wing experimented with is not satisfactory. Further, the single forward wheel fitted to the Viper machine has been scrapped and two wheels fitted forward, secured to the sides of the fuselage in a fixed position—i. e., they can not caster nor are they subject to the control of the pilot.

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4. Developments at A. V. Roe (Ltd.).

The Air Ministry has recently placed an order for 100 Avro *504–N* training planes, powered with Armstrong-Siddeley Lynx 180-horsepower engines. (See p. 17–b of All the World's Aircraft for 1926.)

A new Avro Ava bomber is under construction, practically ready for assembly. One of this type has already been delivered to the Air Ministry.

It was learned that the Air Ministry is holding a competition for the selection of a new deck-landing torpedo carrier in which at least three firms are known to be competing—i. e., A. V. Roe (Ltd.), Handley-Page (Ltd.), and Blackburn Aeroplane & Motor Co. (Ltd.). The A. V. Roe Co.'s airplane for this contest is known as the "Buffalo." It is powered with a Napier Lion engine, carries one 18-inch torpedo, or an alternative load of three 550-pound bombs, pilot, and bomber. The company claim a top speed of 118 miles per hour at sea-level conditions with full military load.

The Beardmore Typhoon engine, which has been installed in an Avro Aldershot, has completed its three-hour ground test and will be ready in the next few days for air test. (See p. 9–c of All the World's Aircraft for 1926.) This engine is now said to develop 960 horsepower. The installation is a very neat job and presents very small head resistance. It is believed that this motor is being developed for use in the new rigid airships *R–100* and *R–101*, now being constructed in Great Britain.

The A. V. Roe Co. are constructing seven Avro *504–N* training planes for the Government of Chile.

It has been noticed that in most of the new-type bombing or torpedo-carrying airplanes that the Air Ministry favors the prone position for the bomber. This is true of the Avro Ava and Buffalo and the Fairey Fawn. The arrangement for this purpose in the Avro Ava seems exceptionally good. The bomber is provided with a sliding cushion platform, which when slid into bombing position, places him prone on the bottom of the fuselage with his head raised about 10° from the line of flight. The nose of the airplane is cut away sufficiently to place a window, providing the bomber with a view directly forward, enabling him to watch his target as he approaches it. The bomb-release handles are convenient to his right hand and can be operated individually or in salvo. The bomb sight was not fitted, but fittings were provided which seemed to indicate that the bomb sight would be directly under the bomber's eye when he is lying in position on the platform.

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5. Visit to Short Bros.' Works.

This firm is building two experimental deck-landing airplanes for the Air Ministry (apparently torpedo carriers). These airplanes are of steel and duralumin construction, with metal-covered fuselages and fabric-covered wings. They are powered with Bristol Jupiter Mark VI motors, of 450 horsepower.

The Air Ministry requirements on these two airplanes are that they shall be able to land on an aircraft carrier, on the water, and on land and must be capable of being catapulted. The undercarriages were not assembled, so the landing gear could not be examined. However, the manufacturers claim that they will be able to fill all of these requirements of landing by a new float of their own design. They stated that they had already run tests of landing airplanes on the deck of carriers with a float undercarriage instead of wheels. They also intimated that they were experimenting with a combination float and wheel. The interior of the fuselages and bomb or torpedo racks could not be examined.

This factory had under construction and in the process of assembly about 8 or 10 airplanes of what appeared to be De Havilland *9–A*, of

stick and wire construction. It was very apparent that they did not desire to give any information about this lot of airplanes, but desired to leave the impression that they were being built for the Royal Air Force as replacements. This is entirely possible, but hardly seems probable, since the Air Ministry have developed several improved designs to take the place of the *D. H. 9 A.* notably the Hawker Horsley, Fairey Fox, and Westland Yeovil. It is quite probable that these airplanes are being manufactured for a foreign government.

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6. Supermarine Aviation Works (Ltd.).

During a recent visit to the Supermarine Aviation Works (Ltd.) at Southampton, it was noticed that seven new Southampton flying boats were under construction. Six of these were of the ordinary wooden-hull type and one was of a new metal-hull type.

Supermarine are treating their duralumin by the "Anodic" treatment before assembly, by a coat of that nonmetallic paint of their own specifications, followed by a covering of enamel.

Information was also received that Supermarine are constructing a racing airplane to compete in the next Schneider cup race. Details of this airplane could not be secured, except that it is to have a metal fuselage and metal floats.

NOTE—The Southampton is a twin-engine machine mounting two No. 450 Napier Lion engines, with a maximum speed of 108 miles per hour and a ceiling of 14,000 feet. This plane is the standard twin-engine reconnaissance flying boat of the Royal Air Force.—ED.

GREECE

A. NAVAL

1. British naval mission.

The Minister of Marine, M. Canaris, has announced the text of the convention with the British naval mission which is to reorganize the Greek Navy. The text has been sent to England.

In accordance with the terms of the agreement, the mission is to build up the morale of the navy as a fighting unit by complete scientific instruction of personnel.

In case of war between Greece and any other nation the officers of the mission will not be allowed to participate.

Another stipulation is that the convention can be dissolved on the request of either party.

An English officer with the grade of captain will head the mission and will be given the same grade in the Greek service while

head of the mission. This officer will be Captain Tairle, British Navy. The others will be a commander who will direct the studies in the naval academy, a commander to organize naval aviation, a lieutenant commander as chief of staff, and a lieutenant commander as instructor of technical aviation personnel. The convention to remain in force for two years from March 15, 1927.

NOTE.—It has been known for some time that such a mission was to be sent to Greece, but the above constitutes the first authentic information concerning the details of this.—ED.

ITALY

A. NAVAL

1. Personnel difficulties.

The Ministry of Marine last year offered special conditions to volunteers enlisting for a four-year term. The number of volunteers was limited to 1,000. This policy has evidently been successful, as this year the appeal for volunteers, in addition to the regular conscription recruits, was renewed with the same conditions as last year except that the number was increased to 2,150. Propaganda is being employed in order to give this offer as wide a circulation as possible, as illustrated by an article in a prominent Roman newspaper. "Among the many advertisements claiming the attention of the public," this article says, " there is one showing a youth standing on a yard adorned with flags and appealing to youths of the 1908 and 1909 classes to enlist in the navy under special conditions and receiving prizes in cash at the end of their service. This placard also adds where further information may be had." The reasons for this special enlistment, the newspaper goes on, lies in the great technical complexity of modern ships. " It takes at least one year to train a sailor fully for his work, whether he be an electrician, a torpedo man, a mechanician, a gunner, or any other of the many specialists required by the machinery of a modern ship. The term of service for regular compulsory enlistment is only two years. Thus, while every year the navy has two classes under the colors, only one is doing real work." One remedy to this state of things would be in having long-term volunteers, as in the United States and British Navies. " This would prove too expensive for us, as volunteers to be attracted must be paid well. And besides that, even with a volunteer navy it is difficult to get men to fill all requirements, as the United States and Great Britain know only too well. The best system for a conscription navy like ours is to have, in addition to the regular contingent of levied personnel, a nucleus of volunteers from which petty officers will be trained."

"The system adopted by the Ministry of Marine is to invite young men to anticipate by one or two years their compulsory enlistment, thus joining the navy for a period of three or four years at least. They will be trained in the special categories chosen by themselves, so that when their class is called to the colors they will be already formed and ready for service. On leaving service at the same date that their class leaves it, they will receive prizes in cash, unless they wish to remain in the navy as a career, in which case promotion is open to them up to the rank of captain in the Royal Equipage Corps."

B. AERONAUTICAL

1. Seaplane bombardment squadron.

The Italian aeronautical press reports that—

A decision of the minister is now being carried out which will complete the organization of a new seaplane bombardment squadron, attached to the Pola airport for seaplanes (Idroscalo).

The planes employed will be *Savoia 55* with Asso engine built by the S. I. A. I. The squadron will be a part of the Fourteenth Mixed Wing.

NOTE.—These planes are twin-engined (two 400 horsepower) twin-hull monoplane flying boats. The engines are mounted in the center of the wing in tandem. The plane has a maximum speed of 130 miles per hour.—ED.

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2. Establishment of a parachute school.

The Ministry of Aeronautics has decided that a parachute school shall be established at the Montecelio field and has appointed Lieutenant Freri, director of the school.

The parachute "Salvator" has been adopted for general use, and this valuable life saver, exhaustively tested in Italy and abroad by Lieutenant Freri, will be prescribed also for all aviation schools, where unhappily accidents are frequent.

Parachutes will soon be supplied to all aviators individually and the Ministry of Aeronautics is doing its best to equip all flying men with them.

NOTE.—This parachute is one which fits closely and compactly to the back. It has recently been exhibited in England by Lieutenant Freri.—ED.

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3. Aeronautical personnel.

The difficulties and problems encountered by the Italian Ministry of Aeronautics in obtaining the right kind of enlisted personnel and the measures which the Government will take to meet these difficulties are illustrated in the following article from an Italian service journal:

As is well known, the enlisted men of the air force are divided in two great sections—volunteers with a long term of service and conscripts with the short term of service required by existing military legislation.

Volunteers are the most useful to the air force in performing the many important services of a technical character. From volunteers most of the petty officers are chosen. Conscripts are, instead, only useful for general services, with the exception of that percentage of them which are equipped with technical training and which cooperates with the volunteer personnel in performing technical services. From this percentage the aeronautical reserve is also drawn. By "aeronautical reserve" we mean that contingent of soldiers belonging to discharged classes who have the necessary requirements for the special aeronautical services in case of mobilization.

Conscripts ought to be obtained by the air force by its own recruiting organizations, just as the army and navy do. Hitherto the air force has availed itself of the army and navy recruiting organizations. This, however, was to be only a provisional measure, ending with 1926.

The reason for this transitory measure was that it was not practicable that the air force at its inception should have an organization for a conscription of its own personnel. Such a conscription requires extensive lists of all young men eligible on account of their training or profession for service in the air force.

As things stand, however, it may be easily foreseen that up to a date which can not be determined the air force will have to take its conscripted personnel from the youths recruited by the army and navy organizations.

The necessity has therefore been felt of drawing up regulations governing the relations among the three military administrations with respect to existing conditions. A decree which will soon be published contains provisions to this effect.

Concerning the other section of enlisted personnel—viz, volunteers—it is evident that the problem of volunteer personnel in the air force is intimately connected with the enlisting of volunteers in the army and navy. Volunteer enlistments are offered by these administrations to youths under the conscription age and with the necessary physical and professional requirements. To attract volunteers, the military administrations are authorized to offer the best possible conditions. It follows that at the time of the annual call to the service most of the contingent of eligible youth has already been distributed among the other arms. Thus if one of the administrations has offered such favorable conditions as to absorb a high percentage of trained personnel before the conscription the contingent of trained recruits left to the other services may be considerably diminished, thus depriving these services of those good recruits which all arms require and which in our country are only too few.

The decree of which we have spoken above will also regulate the relations among the various services so that the needs of all of them will be looked after. It will also contain other provisions in favor of the enlisted personnel of the air force.

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4. Progress of military aviation.

The following article appeared in the Paris Temps. A summary of it was published in the Italian press.

"The efforts of the national government to give Italy a powerful air force are well known. Signor Mussolini, as Air Minister, will not relax his efforts until he shall have attained second place with 1,600 military machines. France is still at the first place; then comes the United States and Great Britain. For the year which is be-

ginning the Italian air force will dispose of funds estimated 600,000,000 lire. It is intended to equip 182 squadrons of airplanes and airships, with a personnel of 2,310 officers and 24,000 men. The institution of "inspectors of mobilization" makes it possible to study not only the problems of future warfare, but also the organization of special corps, the production of military material, and to face all the eventualities of a campaign.

"One of the principal preoccupations of the Italian general staff is the menace against the centers of Italian hydroelectric production. Italy has no coal reserves; fuel at her disposal is a minimum and of bad quality; she has no oil. The problem of fuel is, under these circumstances, one of the gravest dangers to national economy. During the last war Italy had enormous difficulties in getting coal on account of the activity of German and Austrian submarines. After the advent of Fascism, Italy organized and developed her Alpine resources of hydroelectric energy. The torrents of the Apennines now rival the falls and rivers of the Aosta Valley in the work of electrifying the central and southern regions of the peninsula, after Piedmont and Lombardy. Soon all railways from the Alps to Messina and Sicily will be electrified. Industries are gradually replacing coal by electricity, and agriculture is also organizing itself to make use of electric energy.

"What will happen in case of war? Enemy airplanes, upon the declaration of war, will try to destroy this organization so complex and so delicate; a few planes would suffice to destroy the dykes of the barrages; water would devastate the hydroelectric factories, inundating the valleys, provoking a terrible catastrophe. Engineers have studied the means to prevent or at least to minimize the consequences of these air raids by protection of factories and dams by defensive constructions and organization of depots of coal and of oil to obviate the total or partial lack of electrical energy.

"Inspectors of mobilization have devoted all their attention to the aggressive and defensive rôle of the air force at the beginning of hostilities. Aviation during the operations of mobilization and concentration must anticipate the enemy raids, protect the great towns and the principal establishments of electric production. The last war has demonstrated that Germany did not care much for the archaic forms of declarations of war. She rushed forward her armies, preceded by numerous squadrons of planes and armed motor cars, terrorizing the French and Belgian populations. Fascism, we are assured, will not let itself be taken by surprise; it will prevent the offensive of the enemy by paralyzing his action with a lightning appearance of its own airplanes. Italian aviation cadets are taught that the principal aim is to destroy enemy planes before

they have been able to take off. It is a system of tactics which is recommended with Fascist audacity.

"The Ministry of Aeronautics has also carefully prepared the plan of requisition of all civil airplanes in case of mobilization, as well as their transformation into fighting craft."

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5. *Review of Italian aeronautics.*

A. HEAVIER-THAN-AIR TYPES OF PLANES

Regular establishment, material

Planes assigned to active service:

(*a*) Unit of organization—squadron.

(*b*) Total number of service units—100.

(*c*) Number of planes in unit—

Types	Operating	Reserve	
		First	Second
Land planes:			
VF (pursuit)	12	6	6
VO (observation)	9	5	5
VT (day bombing)	6	3	3
VT (night bombing)	6	3	3
Seaplanes:			
VF (pursuit)	9	5	5
VO (observation)	9	5	5
VT (torpedo)	6	3	3

(*d*) Number of service planes, by types, at home, based at shore stations—

Types	Squadrons	Operating	Reserve	
			First	Second
Landplanes:				
VF	26	312	156	156
VO	23	207	115	115
VT	22	132	66	66
Total	71	651	337	337
Seaplanes:				
VF	7	84	42	42
VO	14	126	70	70
VT	1	3	[1]	[1]
Total	22	213	112	112
Grand total, all types	93	864	449	449

[1] No reserve.

(*e*) Number of service planes, by types, at home, based on ships—

VF seaplanes 4
VO seaplanes 5

(*f*) Number of service planes, by types, abroad, based at shore stations—

Seaplanes	Squadrons	Operating	Reserve	
			First	Second
VO	4	36	20	20
VT	3	18	9	9
Total	7	54	29	29

(*g*) Number of service planes, by types, abroad, based on ships.—Two observation planes on the *Lybia* in Chinese waters.

(*h*) Total number of each type, service planes, assigned to battleships, cruisers, aircraft carriers, aircraft tenders, and other vessels (specify types of vessels): At present only the Italian batleships (first line) carry *Macchi 7* and *Macchi 18* folding-wing central-boat seaplanes launched by catapults. It is planned to put similar planes on the new light cruisers *Trento* and *Trieste* and on other light cruisers. Italy has only one ship listed as airplane carrier, the *Miraglia*, not yet in commission. She will carry *VF* and *VO*. We would class her as an aircraft tender.

(*i*) Total number of service planes in commission—927.

(j) Total number of service planes in reserve considered necessary to support the above planes in commission—956.

(k) Total number of service planes actually in reserve to support the above planes in commission—estimated approximately 350.

(2) Planes assigned for training purposes.—Italy has no training squadrons or planes. There are seven pilot schools run by civilian companies with an average total of 150 land and sea planes altogether. Once cadets have obtained their first pilot's brevet at the schools, they are sent to active squadrons where they train on first-line machines in order to get their military brevet.

Reserve establishment, material

In Italy there are no reserve squadrons. As stated above each squadron has a certain number of first reserve machines (with the squadron itself) and an equal number of second-line reserve machines (stored at four large depots—viz. 1 depot for pursuit, 1 for observation, 1 day and night bombardment planes, and 1 for seaplanes of all types).

Personnel

ACTIVE AVIATION PERSONNEL

Total number of officers—912.

Officer pilots in above total—400, approximately.

Officer observers in above total—200, approximately.

Total enlisted men—13,000.

Enlisted pilots in above total—450, approximately.

Enlisted observers in above total—none.

Total number of civilians employed in technical staff and in clerical capacity—about 750.

Number of civilian mechanics—about 100.

Number of civilian laborers—from 300 (regular establishment) to about 1,000, according to requirements.

RESERVE AVIATION PERSONNEL

Total number officers—450, approximately.

Officer pilots in above total—300, approximately.

Officer observers in above total—15, approximately.

Total enlisted men—all discharged classes who have served with the air force. As the Royal Air Force (independent) was organized in 1923, at present there are only three classes discharged, with an approximate total of 30,000 reserve air men.

Enlisted pilots in above total. It is estimated that there are about 300 enlisted pilots who could be enrolled in the reserve, most of whom obtained their pilot's brevet during the war. As, however, enlistment in the aeronautical reserve as pilots is voluntary and implies taking yearly refresher courses, it is not known whether these 300 men are actually carried on as reserve pilots at the present date.

Enlisted observers in above total—none.

Miscellaneous items

Plans for future expansion call for the following number of squadrons by July 1, 1930:

	Squadrons
Independent air mass	78
Mass assigned to army	57
Mass assigned to navy	35
Colonial air force	12
Total	182

Each squadron to be added comprises first-line machines and reserve (first and second line), as given in table at beginning of this report.

Should expansion take place as planned, it would be necessary to add about 22 squadrons in each of the coming four fiscal years.

Additional aviation personnel, regular establishment:

Authorized active strength by July 1, 1927—	
Officers	1,774
Enlisted men	20,771
Authorized active strength by July 1, 1930 (completion of program)—	
Officers	2,340
Enlisted men	29,226

NOTE.—One-half of the number of second and first lieutenants included in total number of officers given above under "authorized active strength by July 1, 1927," and "July 1, 1930," may be officers "di complemento." The number of other reserve officers can not be determined as enrollment in the air reserve of officers who have served in the air force (pilots) is voluntary. Reserve enlisted men increase each year by one discharged class.

According to a statement made by the undersecretary for aviation before the Chamber of Deputies, Italian factories will deliver 600 planes (land and sea) during 1926–27, 250 of which will be of metal construction.

B. LIGHTER-THAN-AIR CRAFT

Type	Rigid	Semirigid	Semirigid.
Name	Esperia	P. M.	Mr-1.
Capacity (cubic feet)	794,250	186,031	35,300.
Length (feet)	426	219	105.
Diameter (feet)	61	41	25.
Number of engines	3	2	1.
Type of engine	Maybach	Spa 6-A	Anzani.
Total rated horsepower	1,000	380	40.

LIGHTER-THAN-AIR CRAFT AUTHORIZED

Type	Semirigid	Semirigid	Semirigid	Semirigid.
Name	N-1 and N-3 (sister ships).	N-4	N-5	Mr-2.
Capacity (cubic feet)	622,750	988,400	2,007,200	38,194.
Length (feet)	347	400	593	111.
Diameter (feet)	62	68	78	25.
Number of engines	3 and 2	3	6	2.
Type of engine	Maybach	Maybach	Maybach	Anzani.
Total rated horsepower	735 and 490	735	1,470	80.

JAPAN

A. NAVAL

1. Mine layers.

The Japanese Navy Department stated that the following vessels belonging to the Japanese Navy are in commission and are serving as mine layers: *Ashizaki*, *Katashima*, *Katoku*, *Kurokami*, *Kurosaki*, *Kuroshima*, *Natsushima*, *Ninoshima*, *Sokuten*, *Toshima*, *Enoshima*, *Ento*.

NOTE.—All of these vessels are rather old craft of 430 tons.—ED.

2. Submarines built, building, and authorized.

As of January 15, 1927, the following submarines are built, building, or authorized:

Built	Building	Authorized
Ha-1 to Ha-10. Ro-1 to Ro-5. Ro-11 to Ro-30. Ro-32. Ro-51 to 65. Ro-67, Ro-68. I-51, I-52. I-1, I-2, I-3.	Ro-31, Ro-66. I-4. I-53 to I-55. I-58, I-56. I-61, I-63. I-21 to I-24.	I-57, I-59. I-60, I-62. I-64.
Total built, 58.	Total building, 14.	Total authorized, 5.
Grand total of 77 built, building, and authorized.		

NOTE.—*I–1* to *I–4* are of 1,970/2,400 tons, speed 20/(?) knots, and mount two 4.7-inch guns; *I–51* to *I–64* are of 1,400/1,700 tons, 21/(?) knots; *I–21* to *I–24* are mine layers of 1,000/1,400 tons, speed 16.5/9.5 knots, two 4.7-inch guns; *Ro–60* to *Ro–68* are of 1,000/1,500 tons, speed 17.5/10 knots. The remainder are of below 1,000 tons surface displacement.—ED.

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3. Kure naval station.

PLANT FACILITIES AND EQUIPMENT

Kure is a first-class yard in every respect equipped to manufacture armor plate, heavy-gun forgings, guns and mounts of all types, torpedoes, and to build war vessels of all types with their equipment. The Japanese have concentrated here their major shore establishment, which employs 20,000 men.

The shops are of modern construction, well laid out, and the shop equipment is modern and complete. Building ways and dry docks are of concrete construction. Coaling and oiling facilities for basing a large fleet. A large natural harbor easily defended by mines, with high surrounding hills, which it is believed are heavily fortified.

Building ways.—One building way large enough to build a vessel of any size (*Nachi* now on the ways).

One concrete building dock about 1,200 feet over all for building vessel of any size. Width, about 130 feet. Depth over sill, about 25 feet.

For dry-docking purposes this dock has sufficient depth over sill only for small cruisers, destroyers, and submarines.

New construction.—Nachi, cruiser, 10,000 tons, on the ways. Observed again the underwater blister covering engine and fire room spaces.

The machinery for the *Nachi* was being assembled in the machine shops, the following material being observed: Condenser casings and

tube sheets; turbine casings, rotors and blades; reduction gears and casings; pumps and valves.

It is estimated that the *Nachi* is about 35 per cent completed and the *Moyoko* (from previous inspection at Yokosuka) is about 55 per cent completed.

Submarines.—*I–53* undergoing final trials. *I–55* observed from a distance. Estimated completion, 80 per cent. Had cylindrical structure on deck.

There were observed two submarine crank shafts being machined in lathes. There were six cranks, with a main bearing between each crank, a separate forward bearing, and rear bearing. The diameter of the main and crank bearings was about 14 inches. There were two cranks for air compressor, diameter about 8 inches.

Aviation.—No activities at the navy yard proper, except a storehouse which was not visited.

Ordnance.—Shops equipped for building guns and mounts of any size, including heavy gun forgings and castings of any required size. Heaviest press in forge shop, 8,000 tons.

Inspected a gun slide for 8-inch, 50-caliber mount (new type for cruisers and airplane carriers). Hydraulic recoil, pneumatic return (no springs). Pneumatic cylinder on top of slide; hydraulic cylinder under slide. Trunnions are not cast in one piece with the slide, but are separate forgings, threaded and screwed into the slide. The gun and slide have not the usual key and keyway, the gun being kept centered in the slide by the yoke, which is provided with four bronze bearing surfaces which fit over four similar surfaces on the slide.

The latest 8-inch 50-caliber gun is a B. L. R., with side-swing breech mechanism, bronze carrier, salvo latch, self-ejecting lock (no lock seen, but ejecting cam and lever observed), gas-ejecting apparatus with two apertures in screw box, De Bange gas check with an extra copper ring in front of the forward steel split ring, Welin interrupted screw stepped thread breech plug. An officer in the gun shop stated that they use an air pressure of 30 atmospheres (about 450 pounds) on all gas-ejecting systems. He stated that they use the usual silk powder bags in all guns of 6-inch caliber and above.

Permission to inspect any turret guns or turret apparatus was not granted. The conducting officer stated that their 16-inch guns have a side-swing Armstrong breech mechanism.

The 4.7-inch destroyer gun has the usual side-swing breech mechanism. The maximum sight-bar reading on the sight scale is 15,000 meters.

The latest 4.7-inch submarine gun has a semiautomatic horizontal sliding wedge breech mechanism of German design. The yoke and breech-plug housing are in one separate forging, which is threaded and screwed over the chamber cylinder.

A number of 8-inch and 16-inch projectiles were seen in the early stages of machining, also a number of finished 8-inch wind caps. The radius of ogive of these wind caps was about 4½ to 5 calibers, being more blunt than the wind caps of our projectiles. There was no opportunity to observe details of rotating bands or projectile cavities. A number of 4-inch common projectiles with nose fuses were seen, probably high-explosive antiaircraft.

The steel plant connected with the ordnance works has 12 open-hearth acid furnaces, capacity from 15 to 25 tons each; two Bessemer converters; three small electric furnaces; one small experimental electric furnace. The crucible plant could not be visited.

Various sizes of brass cartridge cases up to 4.7 inches seen in cartridge-case shop, all of which were considerably shorter than those of similar caliber in our service.

Dry docks.—No. 1, cement dock, length, 413 feet; width, bottom, 58 feet, top, 79 feet; depth over sill, 28.9 feet.

No. 2, cement dock, length, 585 feet; width, bottom, 81 feet, top, 93 feet; depth over sill, 36.7 feet.

No. 3, cement dock, length, 800 feet; width, bottom, 100 feet, top, 110 feet; depth over sill, 40 feet.

Building dock, cement, length, 1,100 feet; width, bottom, 125 feet, top, 130 feet; depth over sill, 25 feet (estimated).

Chogei (destroyer depot ship, 8,500 tons; length, over all, 380 feet), was in Dock No. 1, with about 30 feet to spare, *Jintsu* (light cruiser, 5,570 tons; length, over all, 535 feet) was in Dock No. 2, with about 50 feet to spare. The above lengths of these docks was arrived at from these figures.

Naval vessels.—The cruisers *Jintsu* and *Abukuma* (sister ship of *Jintsu*) were seen in dry dock and the following details noted:

Two mine tracks, 50 feet long.
Two 2-meter range finders, one on forward fire-control platform, one on after fire-control platform amidships.
Two 3-inch antiaircraft guns amidships, starboard and port of No. 1 stack.
Four 21-inch twin torpedo tubes.
Two paravanes, stowed under upper bridge.
Two quarter davits, starboard and port, well in the stern, and possibly used for rigging high-speed mine sweep.
One radiocompass.
One Vickers director tower on foremast.

Abukuma had a balloon winch on the after deck operated by a gas engine. Also a seaplane stowage platform forward. This platform consists of a permanent structure extending forward from the bridge for about 50 feet, with an 8° slope. No booms or other gear for handling seaplanes could be observed.

Submarines.—Saw in passing *Ro–26*, *27*, *28*, *65*, and *I–51* alongside docks. *I–52* was seen about half a mile away at anchor.

Submarines *Ro–26*, *27*, *28*, and *65*, all have net cutters, clearing wires, loop antennae, two periscopes, one signal mast, two radio masts, and, except for *Ro–65*, no gun was mounted on deck. *Ro–65* had a short, small caliber gun, all of which except the muzzle was obscured by a canvas cover, but which appeared to be about the size of our 3-inch 23 caliber gun.

The *Hiyei* (battle cruiser, 27,500 tons) was observed at a distance, the alterations to her foremast being still in progress.

NOTE.—See December BULLETIN for notes on Yokosuka and Nagaura Naval Stations.—ED.

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4. Study of the black current.

The following is a translation from Japanese press of recent date:

The Japanese Navy is going to send the special service ships *Yamato*, *Koshu*, and *Manshu* to the south seas in March to make a thorough study of the warm black current in the Pacific.

This current moves from the west coast of Central America, along the Equator through the south seas and then past Formosa, Ryuchu, Kyushu, Shikoku, Honshu, and to Kurile where it disappears, meeting the cold currents there.

In the expedition will be included a number of civilian scientists from universities and marine organizations.

Among the subjects to be investigated are the growth of fishes and the observation of air currents by airplanes. The expedition will contribute much to marine science.

NOTE.—The first two of these vessels are listed as survey ships; the latter as a transport. They are from 1,500 to 3,900 tons.—ED.

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5. Harbor in Saipan.

The following is a translation from a recent number "Umino-Nipon" (Maritime Japan) on the above subject:

Recognizing the necessity of having an ideal harbor in the South Sea Islands, both from a commercial and military standpoint, the Departments of Communications and Navy have for some time been considering the question, and it is now learned that they have come to a decision to carry out the project.

The work will be in the hands of the Department of Communications; costing 3,000,000 yen (approximately $1,500,000), to be appropriated during three years. The island where this harbor work is to be constructed is Saipan.

Rear Admiral Takahashi, I. J. N., retired, at one time Kure naval harbormaster, authority on harbor construction, and a number of experts, recently went out to the island and are surveying the site.

NOTE.—Saipan is one of the most southerly of the Mariana group of islands and is only about 100 miles north of Guam. These islands are under the nonfortification provisos of the Washington treaty.—ED.

6. Replacement program.

On January 10, the Minister of the Navy invited the budget committee of the Lower House to the Minister's official residence to explain to them the replacement program and the navy budget in general.

Thirty-eight of the committee attended, and after the Minister's explanations of various points involved, he and the Chief of Bureau of Military Affairs undertook to reply to questions put by the committee.

The points brought out by the Minister of the Navy were—

(*a*) That the replacement program is for the maintenance of present strength, made necessary by activities of other countries.

(*b*) That it is in keeping with the limitation of arms conference.

(*c*) That the elevation of angles of guns, and the construction of cruisers by the United States has a bearing on the program.

(*d*) That the navy yielded by reduction from 33 ships to 27 ships, holding out for four cruisers, the reduction of destroyers to 15, the reduction of gunboats by 1, the reduction of submarines by 1, and maintaining 2 special-service ships.

(*e*) That appropriation for the first year will cover the collection of materials for two cruisers, and wages for dock employees; the preparation for laying their keels to be made along with those of the destroyers under the old program and the balance of destroyers under the independent destroyer program of 1925.

The Japanese Prime Minister, Mr. Wakatsuki, in an address on January 18, 1927, upon the occasion of reassembly of the Diet, made the following statements:

Japan's military and naval strength had been fixed commensurate with the present situation in the world. It followed, therefore, that unless notable changes happen therein, she must continue to maintain her existing armaments. The Government had adopted a program for the construction of vessels to replace the old auxiliary craft.

At the session of the Diet, January 26, 1927, Mr. Hata, of the Seiyukai party, attacked the Government in its naval building policy, since it had agreed to a reduction of ¥30,000,000 covering the cost of six ships, from the "minimum program once announced by the Navy Ministry."

Admiral Takarabe replied as follows:

The six ships which have been eliminated from the proposed 5-year program are comparatively unimportant.

The amount of reduction, ¥30,000,000, is half the cost of a battleship. It means that instead of five submarines we will build four, instead of three river gunboats only two, and the oil ships will be postponed. On the other hand, the destroyers which we will build will be of 1,700 instead of 1,400 tonnage, while the four cruisers are too important to allow any reduction in that quarter.

NOTE.—It is well to remember that the so-called replacement program is merely an expansion program because no vessels are to be scrapped upon the completion of replacement program ships.—ED.

B. AERONAUTICAL

1. Aeronautical notes.

CRASHES AND FATALITIES

There were many crashes and fatalities in the aviation world in Japan recently. The following is a brief record of these:

A Hanriot 32 plane powered by an 80-horsepower Rhone engine, which was under experiment by the Tokorozawa technical branch of the Army Air Department, burst into flames at a height of 600 feet while flying over Kohira village, Kitatama Gun, Tokyo Prefecture on December 10. The machine fell to the ground and was completely burned. The crew, two civilians employed by the Air Department, were burned to death.

On December 17 when flying a B–1 reconnaissance machine for practice, Captain Fukuda, commander of No. 1 air squadron of the fifth air regiment at Tachikawa, made a sharp turn at a height of 2,500 feet, and brought his craft into nose-to-nose collision with another plane of the same type which happened to be coming up under the pilotage of Lieutenant Ogawa, of the same squadron. Both machines fell. The lieutenant was killed instantly, buried deep in the ground with the greater part of his machine. The captain was found in a critical condition, his head scarcely above the ground. He died later.

Second-class seaman Nakamura was having practice on December 17 with a 1921 ship reconnaissance machine of the Kasumigaura Naval Air Group, and carrying second-class seaman Maruoka as passenger. He developed engine trouble and attempted to make a forced landing. The attempt failing, however, the machine struck heavily against a big tree, and both men were badly injured.

The long distance nonstop Kasumigaura-Omura flight over a distance of some 590 sea miles, the final performance of the year by the Kasumigaura Naval Air Group with two 1924 raiding seaplanes was started at 6.45 a. m., December 14. Owing to thick fog when passing over the Hakone Mountains at 8.30 a. m., No. 2 machine lost sight of No. 1. Continuing alone, No. 2 machine passed over Shimizu at 8.40 a. m. and made a forced landing at Akenogahara at 9.20 a. m.

On December 17 there was found a crashed airplane in a valley some 3 miles away from human habitation in Ano Gun, Mie Prefecture. Upon investigation it was ascertained to be the one of the two naval machines flying from Kasumigaura to Omura on the 14th which had been reported missing en route. The craft was smashed, and both pilot and passenger (Lieutenant Hamamoto) were jammed dead between parts of the machine body.

On December 21 when under way to a certain place rather far off the flying course, a fighter, operated by Sergeant Major Takeuchi of the Tokorozawa Army Flying School, nosed down from a height of 150 feet at the moment when the pilot tried to make a forced landing owing to engine trouble. The plane was severely damaged and the pilot seriously injured.

Engine trouble led to the crash of a machine on the Asahi east and west regular air service when it was nearing a place not far from the Tachikawa airdrome on December 22. Pilot and passenger were found critically injured.

OBSERVER TO STUDY FOREIGN COMMERCIAL AVIATION

The sum of ¥12,000 is included in the present budget estimates to cover the expenses of a committee of inquiry to make the necessary investigations preparatory to the formation of the National Air Transport Co., which is a proposed semiofficial company for the operation of air mail and passenger service between important cities in Japan and between Shanghai and Dairen and the main island of Japan. As the first step in these investigations, the Department of Communications has decided to send Mr. S. Iwai, chief of the control branch of the air board, to Great Britain, the United States, France, Germany, and Holland for about a year with the object of studying the methods of operation of commercial aviation companies in those countries.

ALLOCATION OF NAVAL AIRCRAFT CARRIERS

It is announced in the press that the aircraft carrier *Akagi* will be attached to the Yokosuka naval port upon its completion in March, 1927. The aircraft carrier *Kaga*, sister ship of the *Akagi*, will, upon completion, be attached to the Sasebo naval port, while the aircraft carrier *Hosho*, now in service, will be transferred from the Yokosuka naval port to the Kure naval port. In this way each of the main naval stations will have one aircraft carrier.

NIGHT FLYING PRACTICE

There has been considerable activity in night-flying practice in army aviation circles during the past month. The objects of this training appear to have been the practical testing of the night-airplane director, the medium range beacon, and the lighting arrangements at and about aerodromes. The medium range beacon used in these exercises was a beacon of 20,000-candlepower. This practice was engaged in by the seventh air regiment at Mikatagahara

over the plain near Hamamatsu, and by the Tokorozawa Air School, on a route between Tokorozawa and Shimoshizu. The machines used by the seventh air regiment were *D-2* bombers and those used by the Tokorozawa School were *B-1* reconnaissance planes. This practice was successfully carried out without accident.

HIGH ALTITUDE COMPASS FLIGHT

A compass navigation high altitude cross-county flight by instructors of the Tokorozawa Army Air School was carried out by two *B-1* reconnaissance planes on December 21. The planes left Tokorozawa at 7 a. m. bound for Kagamigahara, which place was successfully reached at 9 a. m. They then returned to Tokorokawa, reaching that place at noon, whereupon they started for Sendai at 1 p. m. One of the machines reached Sendai safely at 3 p. m. The other, however, turned back on the way and returned to Tokorozawa, due to overcast sky. During the flight to Sendai the weather was inclement, with frequent snowstorms, with the result that the planes were forced to fly at a height of not more than 1,500 feet.

STATION-TO-STATION FLIGHTS

The aviation authorities are endeavoring to successfully effect satisfactory air communication between the various army air stations and between the army and navy air stations. For this purpose flights were made during the past month between the naval air station at Kasumigaura and the station of the seventh air regiment at Mikatagahara by the navy *A-5* dirigible. Another flight was made by this ship between Kasumigaura and Kagamigahara, the station of the first and second air regiments of the army. The army air service, in furtherance of this project plans to make flights during the course of the next few weeks between the Tokorozawa Air School and Kagamigahara, between Tokorozawa and Mikatagahara, and between Tokorozawa and Tachiarai, the station of the fourth air regiment. These flights will be made both during daylight and at night.

COLD WEATHER FLIGHTS PLANNED

It is planned to have the fourth and eighth air regiments at Tachiarai in Kyushu paticipate in cold weather flights at Shingishu (New Wei-ju) in Korea. For this purpose four reconnaissance planes are scheduled to leave Tachiarai for Shingishu on January 18, stopping at Taikyu and Heijo en route. The practice is scheduled to last six days, and 140 officers and men are to be dispatched to Shingishu from Tachiarai to participate.

A similar exercise is planned by the sixth air regiment of Ping Yang, Korea. This regiment proposes to use three craft for cold weather practice in Liao-Yang for 15 days from January 15 to 29 next. If approval can be obtained from the Chinese authorities, it is planned to send the machines for this exercise by air. This practice is planned to be held in conjunction with troops of the tenth division stationed in Manchuria.

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2. *Review of air services, Japanese Navy.*

(A) PLANES ASSIGNED TO ACTIVE SERVICE

(*a*) Unit of organization—The squadron. The standard strength of an active squadron is 16 planes, except for a training squadron, in which there are 24 planes.

(*b*) Total number of service units—12½ squadrons.

Type	Operating planes [1]	Reserve planes [1]
Fighting	30	66
Observation	[2] 39	[2] 87
Torpedo	[3] 16	[3] 4
Bombing	[4]	[4]
Patrol	[5] 36	[5] 26
Scouting	[6] 72	[6] 53
Total	193	236

[1] Best information is that part of Akagi, Kaga planes included herein.
[2] Also light bombing.
[3] Also heavy bombing.
[4] Torpedo types are also heavy bombers.
[5] Includes F–5, Rohrbach types.
[6] Includes Hansa, Yokosuka, and Fairey Pintail types.

(*c*) Number of service planes, by types, at home, based on shore stations:

Fighting	30
Observation	[1] 33
Torpedo	[2] 12
Bombing	[3]
Patrol	[4] 36
Scouting	[5] 58
Total	169

[1] Also light bombing.
[2] Also heavy bombing.
[3] Torpedo types are also heavy bombers.
[4] Includes F–5, Rohrbach types.
[5] Includes Hansa, Yokosuka, and Fairey Pintail types.

(*d*) Number of service planes, by types, at home based on ships—24. (See (*g*).)

(*e*) Number of service planes, by types, abroad, based at shore stations—None.

(*f*) Total number of each type service planes assigned to battleships, to cruisers, to aircraft carriers, to aircraft tenders, to other vessels—Battleships, 2 scouting; aircraft carriers, 4 scouting, 6 observation, 4 torpedo; light cruisers, 2 scouting; aircraft tenders, 6 scouting.

NOTE.—The above numbers are totals, since at present only the battleships *Nagato* and *Fuso*, the light cruisers *Furutaka* and *Kako*, the aircraft carrier *Hosho*, and the aircraft tenders *Wakamiya* and *Notoro* are equipped with planes.

(*g*) Total number of service planes in commission—193.

(*h*) Total number of service planes in reserve considered necessary to support the above planes in commission—96 (50 per cent).

(*i*) Total number of service planes actually in reserve to support the above planes in commission—236.

(*j*) Aircraft carriers (of the four given, one is not yet completed)—

Aircraft carriers	Displacement	Speed	Armament	Place of building
		Knots		
Wakamiya	5,875	22	One 3-inch	England.
Hosho	9,500	25	Four 4.7-inch	Yokosuka.
Kaga	27,000	23	Ten 8-inch Four 4.7 inch	Do.
Akagi	26,900	28½	Ten 8-inch Four 4.7-inch	Kure.

(*k*) *Standard naval ships.*—Heavier-than-air craft: Avro model seaplane, training plane; Avro model landplane, training plane; Hanso model seaplane, reconnaissance plane; *F–5*, flying boat; 1921 model reconnaissance plane for use on ships; 1924 model combat plane for use on ships; 1924 model land and sea training plane. A certain number of other planes which are being experimented with.

Dirigibles: Europeon model *Astura* dirigible (Italian); S. S. dirigible; F-type semirigid dirigible.

Balloons: Improved M-type balloons.

(*l*) *Navy air units* (*squadrons*).—The naval air unit at Kasumigaura is the only organ in the navy for instructing air students in aerial tactics, reconnaissance, and mechanics. It is composed of three airplane units and one dirigible unit. It is located at Tauchiurn, in Ibaraki Prefecture.

The Yokosuka air unit is located near the city of Yokosuka. It has two airplane units and one balloon unit.

The Sasebo air unit is situated at the Sasebo naval station and has one airplane unit. It has a detachment in Hiroshima Prefecture.

The Omura air unit is situated in Nagasaki Prefecture, in the town of Omura, and is composed of one airplane unit.

Aircraft carriers are attached to both the first squadron and to the second squadron.

The naval air forces are charged with conducting reconnaissance on the sea in cooperation with the fleet. The navy is now exerting every effort to bring its air forces up to a par with those of the other great powers. The recently advocated establishment by the navy of a naval aviation school, etc., will probably be consummated in the near future.

Present Strength of Bases

	Airplane units	Dirigible units	Balloon units
Kasumigaura	7	1	0
Yokosuka	5	0	1
Sasebo	3	0	0
Omura Bay	2	0	0

Included in the above are a few units not yet complete. The total number of airplane units completed to date are 12½ units.

The Kasumigaura Air Force is commanded by a rear admiral with a captain as adjutant. The Yokosuka force is commanded by a captain with a commander as adjutant. The Sasebo Air Force and the Omura Air Force are each commanded by commanders.

B. PLANES ASSIGNED FOR TRAINING PURPOSES

(*a*) Total number of training planes in commission—45 (estimated).

(*b*) Total number of training planes actually in reserve to support the above planes in commission—166 (estimated). This figure includes 39 experimental planes.

C. RESERVE ESTABLISHMENT

There is no reserve establishment at present.

D. PERSONNEL

(*a*) Active aviation personnel—

Total number of officers	675
Officer pilots in above	195
Officer observers in above	117
Total number enlisted men	6,100
Enlisted pilots in above	337
Enlisted observers in above	220

(*b*) No organized reserve.

E. MISCELLANEOUS ITEMS

(*a*) Plans for future expansion, squadrons to be added.—The present expansion program provides for a total of 17 aviation squadrons by 1930. There are persistent newspaper reports in the vernacular press which state that the plans for development of the naval air arm contemplate a total of 28 active squadrons by the end of the fiscal year 1932–33 (March 31, 1933). Reference to this program was made by the Minister of Marine on the floor of the Diet as far back as 1924, when he stated that the first expansion to 17 squadrons would be followed by an expansion to 28 squadrons. It is believed, however, that the actual attainment of this total of 28 squadrons under the present plan will not be reached until the end of the fiscal year 1933–34 (March 31, 1934).

(*b*) Plans for future expansion, airplanes to be added.—Based upon the proportion of present equipment, namely, a total of 640 planes for 12½ squadrons, the Japanese Navy will have a total of 864 planes for 17 squadrons by 1930. A reliable correspondent states that he has information to the effect that the Japanese naval air strength by 1930 will be 539 active planes, with 269 in reserve, or a total of 808, which checks approximately with the above.

Using the same proportion of equipment per squadron, with a strength of 28 squadrons, the total naval air strength will be 1,435 planes of all types by 1933 or 1934. It is believed that the expansion from 17 to 28 squadrons between 1930 and 1933 or 1934 is planned to follow immediately the completion in 1930 of the contemplated ship-replacement program.

(*c*) Rate at which expansion will take place.—

Total number of planes Sept. 1, 1926	640
Total number of planes by 1930	864
Total number of planes by 1933 or 1934	1,435

The figures given above are considered the most reliable ones available in forecasting the expansion of the naval air force. In the present fiscal year (April 1, 1926, to March 31, 1927) a half squadron was added. The navy estimates for next fiscal year (1927–28) state that 1½ squadrons will be added during that year. It is believed that this yearly rate of expansion will continue until 1929–30, when a total of 17 squadrons will be reached. It is further believed that between 1930 and 1934 the present plans contemplate a yearly expansion of 2½ to 3 squadrons, bringing the total to 28.

(*d*) Additional aviation personnel (regular establishment).—Additional officers, fiscal year 1926–27: Officers, 102; of whom 30 are pilots. Additional officers, fiscal year 1927–28: The contemplated

increase is unknown. Additional men, fiscal year 1926–27: Men, 1,095; of whom 64 are pilots. Additional men, fiscal year 1927–28: The contemplated increase is unknown.

(*e*) Increase in number planes from September 30, 1924, to September 30, 1925—174.

(*f*) Increase in number of planes from September 30, 1925, to September 30, 1926—66.

F. LIGHTER-THAN-AIR CRAFT BUILT

(*a*) Dirigibles—2.

Dirigible No. 5 (No. 1 type): Gas capacity, 3,832 cubic yards; motors, 2 Benz, 130 horsepower each; armament, 3 Lewis machine guns.

Dirigible N–3, sister to *Norge*, which arrived in Japan August 25, 1926, and is being assembled: Gas capacity, 9,220 cubic yards; length, 270 feet; diameter, 43 feet; motors, 2 Maybach engines, 250 horsepower each; speed, 75 miles per hour.

C. MISCELLANEOUS

1. Summary of Japanese strength.

[Source: M. I. D.]

The Japanese Army has been developed both for home defense and service on the continent of Asia and is overwhelmingly the strongest military force in Asia. It is being reorganized and trained upon lessons taught by the World War. While the army is relatively weak in materials, this weakness is being gradually overcome. Mobilization would be very rapid and the army is stationed so as to facilitate recruiting and aid mobilization. The Japanese soldier can be expected to fight willingly and well in any war undertaken by the Empire. The army would do well opposed to inferior leadership, but might be defeated by a bold, active, and energetic commander.

Japan's navy, standing next in strength to the United States and Great Britain, is modern, well balanced, and ready for service. It is relatively strong in battle cruisers, light cruisers, and submarines.

Japan's geographical isolation is such that her strong fleet could most advantageously hold the strategical defensive, but at the same time assume the tactical offensive. So long as the sea routes to Asia are open, it would be extremely difficult for any nation or combination of nations to defeat the Japanese Army in Japan, eastern Siberia, or northern China.

LATVIA

A. NAVAL

1. New construction.

The fitting out work on the submarine *Ronis* is practically completed.

The second boat, the *Spidola*, will shortly be ready for its first trials; both will be brought to Libau during the spring, the *Ronis* possibly at the end of March. The hulls of these boats provide some ice reinforcement, so that they can operate in ice of about 2-inch thickness; this is not entirely adequate for winter operation in Latvian waters.

The two trawlers were brought to Libau in October.

There has been much criticism of the Government and of the war department for making such a large outlay for submarines and trawlers; the criticism has been forgotten for the time being, but may at any time come to a head again.

NOTE.—These submarines are being built in France. They are of 390/514 tons, speed 14/9.5 knots, and mount one 3-inch gun and six 17.7-inch torpedo tubes. Their construction was probably undertaken because of the virtual epidemic of submarine construction now in vogue in the Baltic. The two trawlers were built in France also and are of 250 tons.—ED.

NETHERLANDS

A. NAVAL

1. Cruiser "Sumatra."

The *Sumatra* is the newest large ship in the Netherlands Navy (sister ship of the *Java*—built at the same time). Both ships were built for service in the Dutch East Indies. Laid down (in Amsterdam) in 1916; commissioned May, 1926. Delayed during building by war-time shortage of material and by a fire that necessitated the rebuilding of the engines and a portion of the ship; length (over all), 509.5 feet; beam, 52½ feet; draft (maximum), 22 feet; maximum speed (six hours sustained trial in rough sea), 31.8 knots (developed 82,000 horsepower); complement (on Indies station), 35 officers, 40 petty officers, 265 Hollanders, and 160 Javanese; cruising data (Honolulu to Yokohama, 3,394 miles), 16 days at 212 miles (9 miles per hour), on 60 tons of fuel oil per day (2½ tons per hour); maximum capacity fuel oil, 1,070 tons.

Appended photographs give an excellent idea of the ship's handsome and man-of-warlike appearance; is flush-decked for 350 feet

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(to within 42½ feet of the stern); metal used almost exclusively (only deck and mess tables and gratings of wood); vessel exceptionally well constructed according to best naval practice; hull plating both jogged and strapped; deck of best 4½-inch teak; protective deck has slope of 35° (6 to 10 feet from sides of ship). Compartments generally are commodious (particularly in overhead space). For subdivision within a water-tight space, paneled sheet metal has been used almost entirely. There are no wire-mesh subdivisions, which is generally considered far better for adequate ventilation and general living comfort than are sheet-metal partitions. The air ports are large, and none were cracked, although the vessel had been through a storm.

A centrally located compartment, lying as near as could be judged between Nos. 2 and 3 firerooms and beneath protective deck, is fitted with a powerful motor-driven ballast pump and flood and drainage controls to all main compartments. This station permits stability control and is further equipped with telltales, which give the flood status of all compartments.

Gasoline is carried in a built-in compartment on port side which is sealed from the rest of the ship. Gasoline-supply lines are all led through water-jacketed piping up to points of delivery. Sufficient supply carried for two hydroplanes, as well as power-driven boats.

There are no overboard discharges above the water line. All the sewage drains are apparently discharged under water by some ejector system. This results in a markedly improved external appearance.

The vessel's living compartments are well supplied with vent sets of approximately 2,500 cubic feet per minute capacity.

It was reported that the vessel at sea was comfortable and rolls easily.

The *Sumatra* carries four paravanes, similar in all respects to the Burney gear provided in United States naval vessels.

The vessel is fitted to carry two small hydroplanes, which are hoisted and lowered by means of two derricks located between the two stacks.

While the ship itself is handsome and man-of-war-like, she lacks that naval smartness and "atmosphere" which one finds in British and American ships of war and which is considered of such great importance in both services. The standard of cleanliness above and below decks is only about 75 per cent of that maintained in the United States Navy. The interior, especially in crew's living compartments, has some odors, presumably of latrine, and from fumes of the auxiliary Diesel engine for generating power. The height between decks is too great (a waste of space).

At sea officers are at battle stations six days a week, sometimes twice a day, when an opportunity offers to exercise director, range-finder, periscope, searchlight, gun-pointer, trainer, and sight-setter personnel on some vessel sighted on useful bearings and distances.

RADIO

All of the radio apparatus on board is of German make, carrying the trade name of "Lorenz," said to be the latest type of apparatus made in Germany, the Lorenz Co. now being what the Telefunken Co. formerly was. The apparatus is very compact and easily handled, adjusting and changing frequencies very convenient. Operation and control of all apparatus is local, there being no remote stations on bridge or in conning tower.

INSTALLATION

Battle or primary radio station is vertically below the conning tower—behind the side armor.

Transmitters.—Two transmitters are installed in this room: (*a*) One 10-kilowatt (C. W.) high-frequency alternator (Lorenz; wave lengths 800 to 4,000 meters). (*b*) One 500-watt spark (1,000-cycle note—wave lengths 500 to 875 meters—with semiquenched gap). Gap consists of about 10 circular plates (as in the Telefunken type quenched gap, but with no gaskets; separated only by air; open and noisy). The maximum range (at night) is apparently about 2,100 miles.

Motor generators.—In an adjoining compartment are located the motor generators for the two transmitters and a 25–30-kilowatt generator (for auxiliary power supply) driven by a four-cylinder gasoline engine. The generator for the 10-kilowatt transmitter is driven by a 13-kilowatt motor. The generators for both transmitters are driven by current supplied from the main generating plant of the ship. These motor generators are all of the vertical type.

Switchboards.—There are three marble panels (approximately 3 by 7 feet), on which are mounted rheostats, frequency and wave meters, and tuning controls. (Retuning can be accomplished in from two to three minutes.)

Receivers.—There are three receivers in this room—a long-wave receiver (4,000 to 17,000 meters), an intermediate (300 to 4,000 meters), and a short wave (about 20 meters). The first two are standard Lorenz equipment, very compact, and each containing two tubes (detector and one stage of audio frequency). The filaments

take 8 volts and the plates 50. These tubes (Phillips) are about the size of our United States WD–11 (mounted in a vertical position and partly projecting above the receivers). Current for these tubes is supplied from storage batteries.

Radiotelephone.—There is also installed in this room a late-type radiotelephone manufactured by Lorenz. The transmitter apparently consists of two 500-watt tubes. This transmitter is for use in action.

Listening devices.—In this room is also the latest-type receiving equipment for a 21-tube listening device.

Secondary radio station.—Located on the level of the main deck, under and forward of the conning tower (behind light armor). A roomy, well-designed compartment, about 10 by 12 feet. This station contains everything found in the battle radio station except the radiotelephone and the listening device.

Antennæ.—The main antenna (No. 1) is a five-wire flat-top banded together (spreaders about 17 feet; length about 150 feet) with a stranded down-lead from the forward end. The lead-in goes to a heavy porcelain insulator on the starboard bulkhead of the secondary radio station. It is insulated aloft with 12-inch porcelain rods (with small corona shields on each end). This antenna is of so old-fashioned a type that it may be that the antenna provided for use with the modern transmitters and receivers installed is lowered and stowed away before entering port.

The No. 2 antenna (transmitting) is a two-wire flat-top circuit, terminating as one conductor at the port bulkhead insulator of the secondary radio station. This antenna is about 50 feet below the main antenna. Its insulation appears sufficient for a 2-kilowatt transmitter.

Antenna No. 3 (about 80 feet long) is a vertical wire from the starboard foreyardarm to the bulkhead insulator of the secondary radio station. It is interesting to note that none of the rigging of the ship is broken up with porcelain insulators, except within 15 feet of the radiocompass loop (aft).

Radiocompass.—Located in a compartment on the after side of the deck house abaft the mainmast. There is a circular loop (about 30 inches in diameter and about 2 inches thick) just abaft and above No. 3 range finder, giving an unobstructed sector of about 300° without crossing through the main rigging (the best-located radiocompasses yet observed in our own or any foreign navy). The deckhouse rail and the main rigging in the vicinity of this compass is broken up with white porcelain goose-egg insulators.

Ordnance

GUNS—MAIN BATTERY

The main battery consists of ten 5.9-inch 50-caliber guns (eight of Krupp manufacture and two of Bofors). All guns are mounted singly in splinter or blast shields, which are box-shaped (open at the breech end of the gun). The guns are mounted as follows: One on center line on forecastle, one on center line on superstructure deck forward, one on center line on superstructure deck aft, one on center line on main deck aft, three on starboard side of upper (weather) deck, and three on port side of upper deck.

The gun crew (5.9-inch) consists of 11 or 12 men—pointer, trainer, gun captain, plug man, sight setter, and loaders.

The recoil of the gun is taken up by means of three recoil cylinders, one located on top of gun (hydraulic) and two below (containing the counterrecoil springs).

The plug (5.9-inch) is of the horizontal sliding-wedge type, operated by a suitable handle (operating) on right-hand side of gun. The firing pin is housed. Mechanism may be cocked by hand if needed and is operated electrically from control station, or mechanically by a system of rods, links, and levers, running to the pointers' hand grip.

GUNS—ANTIAIRCRAFT

The antiaircraft battery consists of four 2.9-inch 55-caliber semiautomatic guns. Two are on the wings of the signal bridge. (These guns are limited in arc of fire by searchlight platforms, stays on the foremast, and other ship construction.) The other two guns are on the superstructure aft. Both the training and elevating of these guns are done on the left side. The range dial has an attachment for use in antiaircraft fire. It consists of a sliding scale which can be set for the altitude of the plane. When this setting is changed for a different altitude, the pointer on the range dial is shifted over to a different range scale on the dial, there being about eight range strips arranged concentrically on the dial. An additional drum on the sight yoke appeared to be used for minor changes in the altitude range. They are "spotted" individually (near the gun). They have no antiaircraft gun platform or any system of antiaircraft fire control. The plug is of the vertical sliding-wedge type (very similar to the Mk. V breech mechanism in our service).

The gunnery officer on the *Sumatra* is said to have had considerable experience in discussing antiaircraft defense with English and

continental officers. The Dutch apparently believe that the best gun defense against aircraft attack (for distances up to 1,000 feet) is that offered by a ½-inch Vickers machine gun (which fires about 700 rounds a minute), and for distances between 6,000 and 12,000 feet, by 1½-inch Vickers machine guns (which fire 220 rounds per minute). The above guns are for use on cruisers and destroyers. The battleships are considered to be able to present an efficient antiaircraft barrage by using a larger gun.

GENERAL INFORMATION

All ordnance equipment was found in an excellent state of repair and preservation.

The fire-control system is an adaptation of the systems used in the German and British Navies and embodies the experience of Jutland. It is known as the "Hazemeyer" system.

Difficulty was encountered in ascertaining the details of the fire-control installation (used on the *Sumatra*) on account of the manufacturer's stipulation of secrecy. However, inquiry developed the facts set forth below:

The current used is alternating in character, and gives a very fine degree of accuracy. Indications are that the system is similar in principle to the General Electric system. The instruments are manufactured in Holland from German patents originated by the Siemens-Schuckert Co. It was stated that the United States has two of these systems on order, and that the company had offered to build for England, provided a minimum of 10 sets was ordered.

The middle 5.9-inch guns on the upper deck are too far from the ammunition supply and are not provided with individual supply scuttles. The 5.9-inch gun on the main deck aft is too near the water for efficient use in even a moderate sea. The Krupp 5.9-inch gun is considered inferior to the Bofors 5.9-inch gun on account of containing no copper (built in Germany during the war when copper was very scarce).

FIRE CONTROL—GENERAL

The most important equipment on the *Sumatra* is the ultramodern fire-control system (Hazemeyer—a German design—constructed in Holland), two complete installations of which were purchased by the Netherlands at a cost of $400,000 each. That portion of the installation contained in the armored fire-control tower is considered the manufacturers' secret, and is not allowed to be inspected. The officer or officers stationed therein have a view of the outside by means of telescopic periscopes. Four stereoptical range finders,

approximately 13 feet in length (all the same type), are a part of the fire-control system. The fire control of the 5.9-inch guns is by this director system, and the electrical connections (including the electrical firing leads) appeared to be more rugged than similar equipment in our service. The range and deflection as given on the pointers and trainers' indicator dials are corrected for ballistic errors automatically. (Such errors as temperature of powder, barometer pressure, windage, projectile type, etc.) The working pointers move smoothly without the "jump" so pronounced in most systems. This permits greater accuracy in pointing and laying the gun.

There are two directors in the fire-control tower, and one in the foretop spotting station. The starboard director in the tower is capable of controlling the seven guns in the starboard broadside, and the port director, the seven guns on the port broadside. Either director is capable of controlling the four guns which can be fired dead ahead. The system is self-synchronous with training and elevation receivers, very similar to those installed on our light cruisers. The fire-control system extends to all the main battery guns, and to the six searchlights, and to the four range finders, in that the two latter are connected with the controlling director to follow-the-pointer in train.

There are two periscopes—one on each wing of the bridge. These periscopes are used to aid the fire-control officer (in the fire-control tower) to train on the bearing of the target in a night practice or attack. They really act as target-bearing transmitters for target-bearing indicators in the fire-control tower. The training receivers on the range finders consist of two dials each (one of which is graduated in degrees and the other in minutes). Each dial has two concentric rings, one painted green and marked for starboard bearings, and the other red for port bearings. When the controlling director is trained to starboard, a green light shows on the receiver; when trained to port, a red light; when the range finder is not to follow the director, another light (color undetermined) shows, and when "control" thinks ranges being sent down are incorrect, a fourth light (color undetermined) shows. A pointer (actuated by a motor) indicates the train of the director at each range finder. A black mechanical pointer indicates the train of the range finder. To train the range finder on the same bearing as the controlling director, it is only necessary for the range-finder operator to match pointers. Electric transmitters are installed on the range finders for transmitting ranges down to the fire-control tower, where they are automatically averaged by an electrical instrument termed an "integrator," whence they are transmitted to the guns. The fire-control system does not extend to the four antiaircraft guns.

The battery is controlled from the fire-control station in the conning tower. The guns follow the pointer in elevation and train and are fired by the director operator. In addition, there are lights for the trainer to indicate the direction of train; green to train right and red to train left. The fire-control wiring runs direct from the main dynamo room to the guns. All cables come out together, securing to a wide panel. These cables are fitted individually with a socket fitting which has the appearance of our gyro cable sockets. A similar fitting was observed at the gun. It was stated that this arrangement is for use in case the cable is carried away during battle, when these connections may be broken and a spare cable led from the gun through the ventilator to the dynamo-room connection. The power for fire control is supplied by a vertical generator set of apparently 100-kilowatt capacity.

Four separate sets of wiring for director firing and sight setting from fire-control tower to guns are run so that if one set is out of commission any one of the other three can be used. The searchlights, range finders, and guns have the same transmitting unit for following the pointer in train. This is actuated by the movement in azimuth of the controlling director. Telephonic communication can be established between fire-control tower, foremast, mainmast, and guns. No voice tubes are installed.

The gunnery officer's periscope in the fire-control tower is so good that he does not have to depend upon spotters to get his salvos on a target. He is a qualified director operator and fires all the salvos himself when using director fire.

"Control" is located in the fire-control tower. Ranges are apparently automatically transmitted to "control" from the range finders. The system from "control" to guns is follow-the-pointer (instruments at guns carrying two dials, reading from 0 to 180 degrees). As in our service, there are (on the pointer side of each gun) two receivers to indicate the angle of elevation of the director, and on the trainer's side there are two dials to indicate the angle of train of the director. In each case, one dial indicates the movement of the gun in elevation or in train. A ready light switch is installed at each gun to inform "Control" when that gun is ready to fire (when using director fire). Each gun is equipped with one range dial and one deflection drum on the pointer's side of the gun. These two instruments are duplicated on the trainers' side of the gun for use in case of casualty to the other set.

There is an installation located in the central station in which the ranges from the four stereoptical range finders are automatically averaged. This average range is transmitted electrically to each gun by actuating a pointer on a sight dial in central. To set these sights,

it is only necessary for each sight setter to match pointers. If the automatic sight-setting system is put out of commission, there still remains the old method of setting the sights, as ordered over the fire-control telephone system.

Illumination is by means of searchlight and star shell. The latter method is favored as it does not light up the firing ship. As stated previously, the searchlights are equipped to follow the director in train. On each wing of the bridge there is a searchlight control, electrically operated visual. Such command as "Elevate," "Depress," "Open," "Close," "Right," "Left," etc., are transmitted by this means to the visuals at each searchlight.

MINES

The *Sumatra* will be equipped with 100 (Vickers) mines upon arrival in Dutch East Indies. Weight of one charge is 550 pounds T. N. T. Length of anchor cable is 325 feet.

The main deck aft is fitted for mine-laying tracks and the rails and all other necessary mine-laying equipment are already on board.

TORPEDOES

Torpedoes are not carried. The Dutch consider torpedoes should be carried in submarines and destroyers—not in cruisers.

ARMOR

The ship is protected by a 3-inch armor belt (392½ feet long, narrowing and tapering to 2 inches for its after 41½ feet) and by a protective deck (1 inch on the flat and 2 inches on the slopes). The conning tower (5-inch walls) is divided into fire-control, navigation, and central-station compartments. The gun shields (5.9-inch guns) are 1 inch thick on the sides and thicker in front and on top.

MAGAZINES

Two magazine groups, one forward and one aft. Ammunition hoists to berth deck from magazines (whip and electrically operated niggerhead). Overhead track runs all around and across berth deck. Ammunition conveyed by trolleys on this track to chutes leading from berth deck to each of the guns (except the middle 5.9 inch on each side of the upper deck). The same type of whip and electric-driven niggerhead conveys ammunition from berth deck to each gun.

Operations

TARGET PRACTICE

(*a*) The first practice of the Dutch gunnery year is fired at ranges varying from 2,000 to 3,000 yards. This practice corresponds, in

general, to our S. R. B. P., but it is director practice and pointer fire is not used. The Dutch have no regular target practice to qualify their gun pointers, but when the opportunity offers they have each man who is to be qualified fire at a target at ranges varying between 2,000 and 3,000 yards. It is understood that all practices fired at these short ranges are fired from one-pounders which are secured within the bore of the 5.9-inch guns, thereby prolonging the life of the gun and reducing expense.

(*b*) There is another practice which is fired at a range of 10,000 yards. In this practice they use a three-fourths powder charge.

(*c*) The major practice of the year is fired at 13,000 yards, with full charge.

(*d*) There is a night battle practice fired at a range of about 4,000 yards.

Gunnery training.—The principal training for pointers is obtained by firing the one-pounders (mounted in the bore of the main battery) at a target distant between 2,000 and 3,000 yards.

Torpedo practice.—Torpedoes are fired by submarines and destroyers at regular practices (at target vessels). They are equipped with collapsible heads and set to run from 3 to 5 fathoms below the surface in order not to damage target or torpedo. Great care is observed at these practices to prevent loss of torpedoes, due to the military value of a torpedo and the excessive cost of this weapon and to the fact that Holland does not manufacture torpedoes but is dependent upon foreign countries for a supply. The Holland Navy buys its torpedoes from Whitehead in England. War heads are loaded with T. N. T. and detonated by fulminate of mercury. (These detonators are always carried in the commanding officer's cabin.)

Navigation Equipment

The *Sumatra* has latest-type Anschutz gyrocompass (which uses three rotary members to the one used in the Sperry type). The Dutch electrical officer considers it more sensitive and accurate (under all conditions of course and speed), but less rugged and requiring more expert supervision than the Sperry.

It is difficult to transport without injury.

It was stated that there are two master gyros on board—only one was seen (in the forward electrical distribution room). This master gyro has operated very successfully on the *Sumatra*.

The third wheel and the two direction balancing prevent any danger of tumbling from wave action.

There are repeaters at the conning tower, bridge, and steering engine room ship-control stations. They are graduated as ours—from 0° to 360° and in points and quarter points. Repeaters are also installed on each end of the bridge.

ENGINEERING

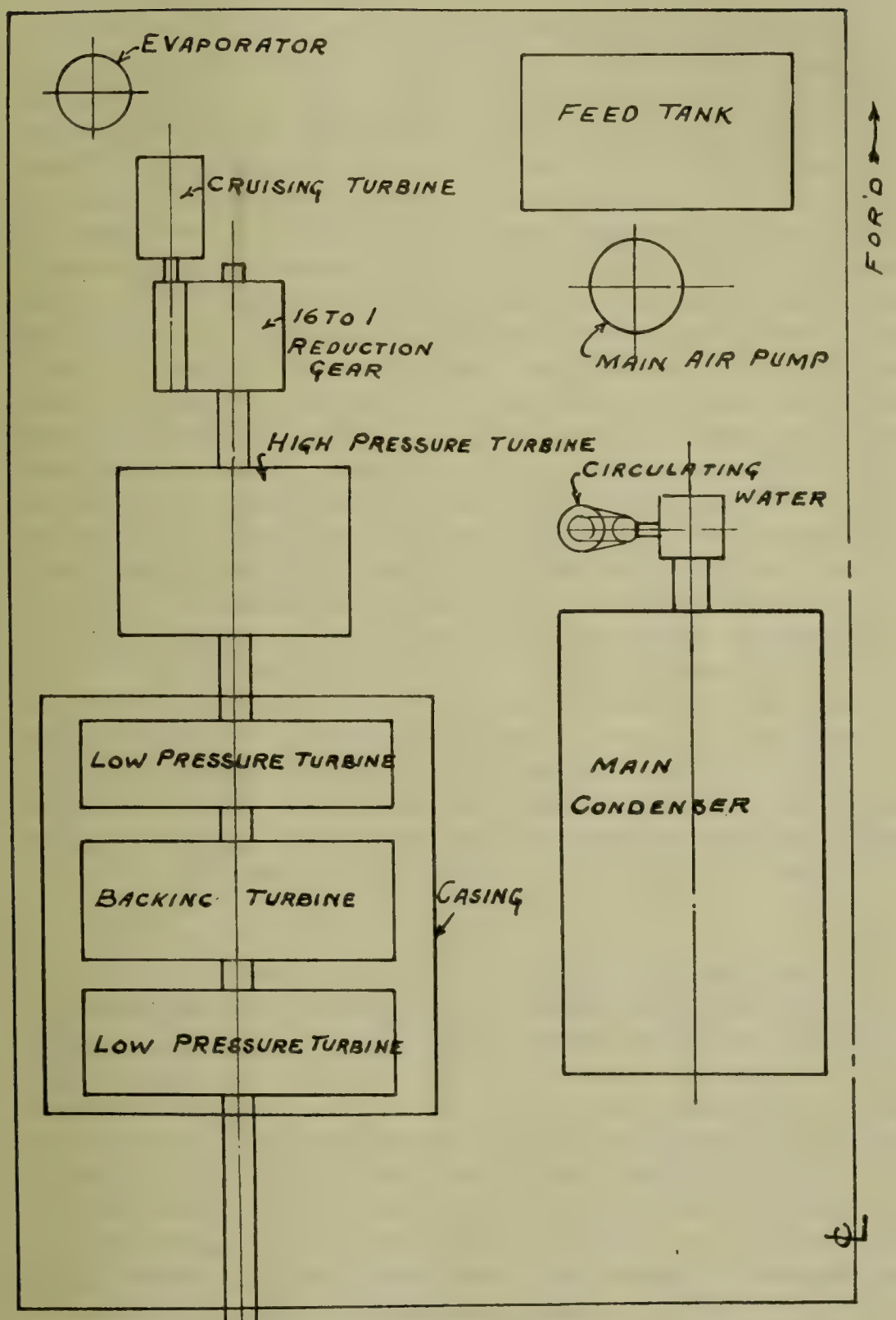
BOILERS AND FIREROOMS

There are eight Yarrow double-ended boilers (two to a fireroom). Four boilers have 11 burners on each end, 2 have 10 burners on each end, and 2 have 9 burners on each end (164 in all.) Only one size burner is used (2.5 millimeters). Each burner is provided with a cut-out valve and may be removed from the boiler for cleaning (in the same manner as ours). The boilers have down-comers from the steam drum at the top to the mud drums at the bottom on each side. The furnace is open from one end to the other and the flames apparently meet midway between the burners. Normal steam pressure is 270 pounds. No superheaters were observed. The engineer officers stated that the boiler tubes were curved (that they had found them to be better than the straight tubes). The steam and mud drums are round. The boilers are side by side.

Each fireroom is supplied with two feed pumps (Weir), which appeared to be about the same size as in our service. One pump is used ordinarily (with the second as a stand-by). There are two fuel pumps in each fireroom. These fuel pumps have two cylinders and were said to be double acting. No trouble has been experienced in taking the oil from the fuel tanks and furnishing it to the boiler at 127.5 to 135 pounds pressure. This is a much lower pressure than that used in our service. The oil service lines to the boilers are furnished with air chambers, which seem to be much larger than any on our ships. The front of the boiler is supplied with rectangular air registers about 4 by 8 inches (over each burner). The registers are swung on a horizontal shaft, and are delicately balanced so that if the pressure in the furnace rises above that of the fireroom the registers close immediately. The firerooms are always closed when steaming and under from 8 to 10 centimeters air pressure. The forced-draft blowers were not seen. The firerooms appear to be very well arranged and are roomy. The lagging of the steam lines did not appear as good as in our service. It was stated that the fuel oil was heated. No fuel heaters were seen, but there are two feed-water heaters in each fireroom.

ELECTRICAL EQUIPMENT

The dynamo room is on the gratings of the after or center engine room. There are here two Smit 198 kilowatt turbine-driven generators. The name-plate data were Smit 220-volt, 900 amperes, 3,000 revolutions per minute. These generators were built in Amsterdam. They are very compact and much smaller than our dynamos. They are entirely inclosed, but a view was obtained of the commutator. There are apparently six sets of 12 brushes. The commutator bars



PORT ENGINE ROOM.
"SUMATRA"

appeared to be about one-half inch in width. The main distribution board was entirely inclosed. All switches are behind the panel and are operated by wheels. The generators were never run in parallel. In fact, the electrical circuits are so arranged that the power and light for the ship may be shifted from one dynamo to the other. The distribution board is furnished with double-throw switches for each motor, but no details were seen. One striking point of the installation was the fact that throughout the ship not a single bare switch was observed. There is no danger of any of the personnel being thrown, in a seaway, against a switch. It was stated that all switches are nickel plated. In the dynamo room there were also two vertical motor-generator sets. One of apparently 75 to 100 kilowatt capacity is for the fire-control circuits and the second, of from about 25 to 35 kilowatts, is for radio. These sets are alternating-current supply. All power supply on the ship is 220 volts, and it is believed that the lighting circuits are 110 volts.

Besides the two main dynamos in this room, there is a third similar one forward which was not seen, and a fourth which is driven by a six-cylinder Holland design Diesel engine. This generator is also a Smit dynamo, but appeared to be larger than the others.

Leaded and armored cable is used in wiring installations. At guns, flexible canvas braided cable is used for portable leads.

There are six 47-inch searchlights (French), two on foremast, two on mainmast (one above the other), one on each side of after-stack. Distant control from the forward bridge by follow-the-pointer dial and mechanical control from the station below each light. Each searchlight has its own motor-generator set. Identical with gun control—enables the lights to be concentrated with the guns.

TURBINES

There are three groups of Zoelly turbines contained in three separate water-tight compartments. Center shaft group aft, with starboard and port engine groups immediately forward of after engine room. Designed horsepower 65,000, but have developed 82,000. After group used only for high-power runs, shaft being disconnected while cruising and allowed to idle (attempts have been made to allow after turbine group to idle while cruising, without success, and attempts discontinued). This group arranged with reduction gear forward, high-pressure driving gear meshing on the side and low-pressure driving direct. This group affords a very compact placing of power plant, but inaccessible for routine examination or overhaul (which is difficult, and entails tearing down entire plant and pipe lines whenever repairs or inspections are required).

The port and starboard engine rooms were said to be identical. The port engine is of the (Schelting) impulse, reaction type. The cruising turbine (used for speed up to 15 knots) is geared to the

main shaft by a 16–to–1 reduction gear. The maneuvering turbines have a high-pressure impulse drive and a low-pressure reaction, and a backing turbine. The maneuvering turbines are a direct drive on the main shaft. The port and starboard engines together develop a speed of 29 knots. On acceptance trial the *Sumatra* averaged 31.8 knots with three engines for six hours in a rough sea. Each engine room is complete in itself, having a maneuvering engine, evaporator, main condenser and air pumps. All turbines are equipped with forced lubrication, the pressure for which is controlled by lubricating steam pumps having automatic throttle regulators.

Throttle controls are well placed, but from necessary steps which have to be taken for reversal while in cruising series, it is judged that the cruising units are dispensed with when freedom of maneuvering is required. Steps for reversal while in cruising series are: Shut off main throttle, crack astern throttle to expedite stopping of turbines, throw out cruising turbine coupling, open astern throttle: operation requiring with well-trained operator about 30 seconds. All low-pressure turbines are of double flow type, steam entering at center, and all low-pressure turbines are fitted with astern rotors.

There is a main stop fitted in each engine room (with an automatic attachment) which trips the valve shut should a turbine group fail for any reason, and in the case of the starboard and port groups these valves are fitted to work in unison. The automatic feature is controlled by means of oil pressure derived from a small pump driven from turbine shafts. These valves have proved "tricky" and their use has been discontinued. All turbine groups have an electric motor fitted for jacking purposes and suitable gearing is affixed which permits using these motors to raise or lower top halves of casings.

In addition to individual throttle controls, there are two main control stations, the master station being placed in the after engine room and the cruising station in the starboard engine room. They are both practically the same, and the following will answer for either: A board on which is mounted repeater gauges from all engine and fire rooms, as well as all telegraph dials, voice tube, and telephone connections to all parts of the ship. The engineer officer of the watch is stationed at whichever board is in use and can keep constantly informed of the entire plant's operation and can control any part of it through its telegraphic and communication hook ups. Rudder-angle indicators also on these boards.

After engine room is well ventilated, but other engine rooms have proven to be very hot during present cruise.

See attached sketch of layout of machinery for port engine room.

AUXILIARY MACHINERY

Steam pumps.—Massive and rugged in design, and show no evidence of having to be forced.

Vacuum (main condenser).—Secured by means of standard type of dry-air pump.

Evaporators.—All high pressure. Each has seven vertical coils with only one loop. Live steam is delivered to the evaporators and the exhaust steam goes to the lower stages of the main turbines.

Auxiliary power (port use).—A Diesel (six-cylinder Werkspoor) generator furnishes power for lighting, ventilation, and motor-driven bilge pumps and air compressors, and also for the CO_2 refrigerating machines. This unit has a small gas motor-driven air compressor (located on deck) for charging starting bottles.

Rudder control.—Rudder is fitted with both a motor-driven hydraulic gear (which operates efficiently up to speeds of 16 knots), and a 500-horsepower steam engine (which is used exclusively at high speeds). Steam steering engine and hydraulic ram are both installed in water-tight compartment immediately over rudder and motor for controlling hydraulic gear is placed in a water-tight compartment adjacent and immediately forward of the rudder compartment (this retains rudder control through the hydraulic system in case rudder compartment becomes flooded). Two CO_2 electrical motor-driven refrigerating machines are also installed in this compartment. All rudder controls from the bridge are of telemotor design (combined with a Waterbury speed gear).

Forced-draft blowers.—Steam turbine-driven blowers are installed and all turbine bearings are lubricated under pressure. The oil for these units is cooled by forcing it through a coil suspended in the main outlet louvres leading to the firerooms (air cooled). Master controls of fuel to each boiler are fitted and have steel-wire lanyards attached so that they can be operated from a safe distance in case of accident.

Loss of feed water.—Considerable leakage of fresh water through poorly made joints and expansion joints have been experienced and evaporators have had to be worked continuously to offset this loss. One of their principal troubles has been loss of feed water through leaks.

Lagging is rather roughly applied.

Evidence of leakages and sweating in cruising engine rooms is marked, corrosion showing overhead in various places.

Repair facilities.—Located in port orlop deck passage, and are of good design and apparently capable of taking care of routine repairs.

Handy billys.—Electrically driven and portable.

Foamite extinguishers.—Two sets of foamite extinguisher tanks (fitted with hose on reels) at entrance to each fireroom. Hand foamites (of about 5 gallons capacity) in each fireroom.

General arrangement of engine rooms.—Crowded and poorly placed for ready accessibility. An engineering officer of the ship stated that to overhaul the afterengine would require three months.

Condition of machinery.—Judging from reported performance on this long trip, apparently excellent, except for leaky joints.

Cleanliness of engine and firerooms and auxiliary stations.—About 80 per cent of the standard maintained in the United States Naval Service. The captain inspects the ship monthly instead of weekly.

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2. *Budget notes.*

The following are extracts from a "memorandum of reply" of the Minister of Marine to the Second Chamber of Parliament, concerning items of the 1927 budget:

In reference to the inquiry of certain members as to whether the progress of reorganization plans of the naval administration now under way has reached such stage that it may not be considered premature to reckon on the determination of the projects for merging of the military departments and splitting of the navy into "home navy" and "Indies navy," the undersigned desires again, and with reference to his statements made on discussion of the bill for modification of Chapter VI of the State budget for the fiscal year 1926, to repeat with emphasis that no such anticipations are being made, provisionally or actually, in any respect.

Reduction in armaments with the object of coming to gradual disarmament can not take place one-sidedly but must adapt itself to what may be expected of an independent State in connection with its international relations. Keeping this in view and at the same time having regard to social necessities, expenditure for the navy has been limited to the strictly necessary. In this connection the undersigned feels that he must emphatically oppose the views of some members—that the navy, from a military point of view, is to be regarded as worthless and that money is being spent on it recklessly.

After due exchange of views, and specially between the Minister of Colonies and the undersigned, the Government has come to the conclusion that no judgment need be expressed concerning the final composition of the fleet for the present, but it prefers to determine what the composition should be by 1930. It has been decided to fix the strength at 2 cruisers, 8 destroyers, and 12 submarines for the Indies as a preliminary requirement. Further expansion of this formation, for the present in any case, would not be desirable so long as no practical solution of the personnel problem has been reached and so long as no data based on experience has been obtained in regard to the maintenance expenses in the Indies for new types of vessels.

The fleet as provisionally decided upon will be formed into two divisions.

That the estimates for new construction for 1927 is about four millions less than was asked for 1925 is explained in the above statement as to the undesirability of enlarging the present fixed formation until a practical solution of the personnel problem shall have been reached. Further, it should be noted that the construction of the various units for which large amounts were contained in the budget for 1924 and 1925 is finished, so that for those units little or nothing is asked in the 1927 budget. Consequently, no funds are being asked for the *Java* and the flotilla craft, and only small amounts for the

K XI, K XII, K-XIII, O 9, O 10, and *O 11*, while the amount asked for the *Sumatra* is considerably lower than those in previous years—florins [illegible] against 1,702,119 florins in 1925 and 1,252,510 florins in 1926. Furthermore, the amount for the 1927 destroyers is placed low in view of the intention of the undersigned not to award the contract for construction until the end of 1927, in order that some experience with the 1924 destroyers may be gained and possibly desirable modifications can be taken into account.

That public opinion turns more and more against the submarine, just as it does against the waging of war in general, the undersigned can not deny. The minister who is responsible for the defense of the country can not, however, let himself be carried away by such currents of opinion. He must take account of the actual circumstances. When he does this he finds that the submarine has still been able to maintain itself in all navies and that the standpoint adopted regarding desirability of its retention was governed for the greater part by national interest and in such manner that in navies with a so-called world task abolition was advocated and in navies of a more limited task its retention was defended.

In the opinion of the undersigned, the submarine can perform valuable services in the preventing of landings on our coast.

With reference to the question whether the larger O-boats (by which, presumably, are meant the *O 9, O 10,* and *O 11*) are unserviceable for our fairways, the undersigned states that, on the contrary, these boats are suitable for any general service that may be required of submarines on our coast in time of war or danger of war.

The period of serviceability of submarines is estimated at about 12 years from date of launching.

In regard to the life of the cruisers *Java* and *Sumatra*, it is to be remarked that due to special circumstances these occupied an abnormally long time in construction. Their launching took place in August, 1921, and December, 1920 respectively; their placing in commission May, 1925, and May, 1926, respectively. In normal construction (based on information gathered) not more than two years should have elapsed between the date of their launching and that of commissioning. In connection with these special circumstances, a duration of approximately 13 years from date of commissioning may be reckoned on.

The cost of the *Java* will amount to from florins [illegible] to florins [illegible]. The *Sumatra* was commissioned about a year later than the *Java*; hence the final cost can not be determined until later. It is presumed the final cost will amount to florins [illegible], approximately.

In regard to the aviation service, a commission has been appointed to furnish data on the following points:

(1) In what manner should a complete or partial unifying of the naval air service be effected in order to obtain a more economical branch with complete development possibilities of the air service.

(2) How to provide for the requirements in this branch in connection with the Indies navy.

(3) What are the financial results of these proposals?

NOTE.—See the JANUARY BULLETIN for further comments of the minister on the budget. Two tendencies of Dutch naval policy are worth noting. First, concentration of modern and effective units of all types of naval and aircraft in the Dutch East Indies rather than in home waters. The purpose of this is obvious. Second, concentration, in Dutch defense policy, on aircraft, submarines, cruisers, and mine and torpedo defense. This is the logical policy of a nation situated as is Holland, which desires security only and which can not afford a large naval establishment.—ED.

B. AERONAUTICAL

1. Aviation building program for Dutch East Indies.

The following is the proposed aviation building plan for the Dutch East Indies Navy for 1927–28:

TO BE DELIVERED IN 1927

18 Dornier Wal seaplanes, two 450-horsepower Lorraine engines; one Fokker twin float bombing plane, two 450-horsepower Lorraine engines.

TO BE DELIVERED IN 1928

Six Fokker twin float bombing planes, two 450-horsepower Lorraine engines; six Fokker scout planes.

NOTE.—When this program is completed the Dutch will have a total of 63 planes of various types in the East Indies, most of the planes being very modern.—ED.

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2. Aircraft construction company.

There has recently been organized a company, known as the "Maatschappij voor Vliegtuigbouw Aviolanda," for the production of airplanes.

It is proposed to assemble planes in the plant of the N. V. Scheepswerf, at Pependrecht.

There has been much criticism of the Dutch Navy for recently purchasing five Dornier seaplanes in Italy, with good facilities existing in Holland for production. When this year's contract for 18 planes was to be let a condition was inserted in the proposals that the planes should be erected in Holland. Del Monte, acting for the N. V. Nationale Vliegtuig Industrie, secured the rights for the erection in Holland of Dornier Wal seaplanes. He then obtained the contract from the Dutch Navy for the 18 planes. It was after securing this contract that the Aviolanda Co. was organized. The N. V. Nationale Vliegtuig Industrie sublet its contract to the Aviolanda Co. for the 18 planes.

The naval attaché has been informed that the only operation that will be accomplished in Holland is the actual assembling of the machines, as all the parts are to be shipped from the Dornier plant in Germany. It is believed that the Aviolanda Co. was organized to shut Koolhoven out of any possible claim for participation.

There is considerable dissatisfaction in Holland in regard to the aviation industry. The N. V. Nationale Vliegtuig Industrie has been practically forced out of business through bad management, lack of orders, and questionable quality of output. The Fokker plant is running at a low-production point and the people generally

have fear for the continuation of this plant, for, as they say, "Fokker has gone to America and deserted the plant in Holland." On the whole, the aviation situation in Holland at present is not good.

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3. Seaplanes in East Indies.

The recently arrived Dornier Wal seaplane, manufactured by the well-known German firm which now maintains a plant in Italy, has satisfactorily completed the tests to which it was subjected subsequent to its arrival at Soerabaya.

The naval air base at Soerabaya now possesses five of these seaplanes, and the complement of these planes allotted to Soerabaya for the time being is now complete.

NOTE.—With this delivery the Dutch now have 82 planes of various types in the East Indies.—ED.

C. MISCELLANEOUS

1. Cartridge-assembling plant at Dordrecht, Holland.

There is a cartridge-assembling plant known as the N. V. Nederlandsche Patronen, Slaghoedjes-en Mataalwaren Fabriek (Netherlands Cartridge, Fuse, and Metal Goods Factory (Ltd.) at Merwedepolder, Dordrecht. The composition of this company is entirely Austrian and said to be controlled by Hirtenberg, of Austria. This company was organized late in 1925.

The plant is an assembling plant and it is believed that it receives the semifinished metal materials from Austria and the powder from various sources. I have been informed by a reliable source that the company has a contract for 50,000 cartridges for the 7.9 millimeter Mauser rifle to be delivered to Turkey. This contract was given by Turkey to Hirtenberg, of Austria, who sublet to the Dordrecht plant. It is reported that the plant ordered 120 tons of powder from Walsroder in Germany. Part of this powder was delivered to the plant at Dordrecht and the first few lots of this order were shipped to Turkey. For some reason, the factory stopped loading with Walsroder powder and began loading with Dutch powder. The Dutch powder did not prove satisfactory, and it is believed that they have agreed to complete the order with German powder. It is not known how this powder is shipped into Holland unless it comes in as sporting powder. The Du Pont representative has been endeavoring recently to obtain an order to furnish powder to this company for the Turkish contract.

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2. Firm of J. B. van Heijst & Zonen, The Hague.

This company is a family concern, composed of the three sons of the founder of the plant. They seem to be wide-awake and anxious to expand in all directions.

At present the plant is turning out bicycle parts, parts for railway carriages, 5.9-inch high-explosive shells, 3-inch shrapnel cases, and airplane bombs.

The equipment of the plant consists of presses and necessary machinery for finishing material. There were about 250 men employed at the time of inspection, but the plant was only working at minimum capacity. Equipment would permit the employment of about 3,000 men.

Work was being done on 5.9-inch shells for the Dutch Navy. The shells are drawn, finished, banded, and base plugs fitted. The loading is done at government arsenal. Mr. van Heijst said that they were able to turn out shells up to 10-inch with present equipment. They were also turning out 3-centimeter shrapnel cases. These were reported to be for the Dutch Government, but this information is doubtful. Airplane bombs of 110.23 pounds and 220.46 pounds are also being turned out, supposedly for the Dutch Government.

The plant has possibilities and could be expanded quickly and under pressure would be capable of a large output.

NOTE.—The new Dutch cruisers of the *Sumatra* class mount 5.9-inch guns, and the above shells are probably for these naval guns.—ED.

POLAND

A. AERONAUTICAL

1. Review of Polish aeronautical activities.

(*a*) ORGANIZATION OF MILITARY AERONAUTICS

Military aeronautics in Poland is controlled by Department IV of the Ministry of War. The air force is composed of five observation regiments, one bombing and one pursuit regiment, and one balloon battalion. Each aviation regiment consists of one regimental commander, one signal platoon, three photographic platoons, one aviation park, one training squadron, and two to four groups of two squadrons each.

Each squadron is made up of from 6 to 10 airplanes each.

The balloon battalion consists of one battalion commander, one signal platoon, one photographic section, one balloon park, four kite balloon companies, one barrage balloon company, and one specialists company.

The principal modern types of service airplanes with the numbers available of each type are:

Pursuit:

Bleriot–Spad 61 (450-horsepower Lorraine)	250
Bleriot–Spad 51 (420-horsepower G. and R. "Jupiter")	50

Observation:	
Breguet 19 (400 and 450 horsepower Lorraine)	250
Potez 15 (Lorraine, 400-horsepower) Potez 25 (Lorraine, 450-horsepower) Potez 27 (Lorraine, 400-horsepower)	500
Bombing:	
Farman Goliath (2 G. and R. Jupiter)	32

All of the above airplanes, except the Potez types, which are made in Poland under license, have been bought in France with the proceeds of French loans.

In addition to the above, there are a certain number of obsolescent *Breguet 14* (300 horsepower Renault) and *Bristol Fighter* (300 horsepower Hispano-Suiza) observation types.

Training is done chiefly on *Hanriot 14* and *18* airplanes (120 horsepower Rhone), although there are also some old *Albatros B. II.* and a few fairly recent *Caudron* and *Morane* models used.

(*b*) MILITARY AERONAUTICAL BUDGET

The fiscal and calendar years coincide. For 1926 the military aviation budget as issued for public consumption is:

	Zlotys
Replacement of material	10,640,000
Maintenance	1,280,000
Training	3,594,670
Fuel and oil	1,241,474
Balloons	300,000
Instruction	750,000
Total	[1] 17,806,144

In addition to the above budget, however, there is a supplementary budget for military aeronautics which is considered secret. It is understood that the secret budget for 1926 amounts to about 14,000,000 zlotys, bringing the total budget up to about 32,000,000 zlotys (about $4,000,000).

During the past several years very large sums have also been spent with the proceeds of French loans in buying the French airplanes listed elsewhere in this article.

Beginning in March, 1923, the Polish Government arranged to borrow from France 100,000,000 francs per year for four years, with the stipulation that the entire sum was to be spent on French war material. The final installment, however, due March, 1926, was found to be unnecessary, so actually only 300,000,000 francs were borrowed. Of this sum, approximately 200,000,000 francs were spent on airplanes and engines.

[1] About $2,000,000.

(*c*) AVIATION DEPARTMENT OF MINISTRY OF WAR, WARSAW

The offices of the aviation department of the Ministry of War are at present located in the southern suburbs of Warsaw, adjoining the flying field of Mokotow. The chief of the department is Colonel Rayski who recently succeeded General Zagorski.

At Mokotow are the Government airplane and engine repair shops. The principal airplanes repaired are the *Hanriot 14* and *22* training types. Provision will soon be made for repairing other airplanes, of which large quantities have been bought in France.

By the end of 1927 the whole establishment will be moved to Deblin, southeast of Warsaw, where buildings covering 70,000 square yards are under construction.

Among the airplanes seen at the military aviation field was one designed by Engineer Zalewski, of the Government's aviation technical section. It is a two-seated observation biplane, with thick plywood-covered wings and circular section fuselage, likewise covered with plywood. The engine is a 450-horsepower Lorraine, with nicely streamline cowling. Below the entire are two cylindrical Lamblin radiators. The wings have considerable overhang behind the single pair of lateral interplane struts and, as seen from the front, the airplane reminds the observer of the Czechoslovak *Smolik 6* biplanes. The ailerons on both top and bottom wings have horn balances. The first airplane built was statically tested, and the second airplane flight tested over a 6-kilometer course. The speed realized was about 136.7 miles per hour. With full load the airplane climbed 16,400 feet in 23 minutes, and the service ceiling was found to be 22,960 feet. It is intended to place an improved model of this airplane into production in one of the private Polish airplane factories.

A subsidiary of the aviation department of the War Ministry is the technical section, which is a much reduced copy of the French "Service Technique de l'Aeronautique." The head is Colonel Beaurain, who has the control of various laboratories which are now scattered but will be collected at the military aviation headquarters at Deblin next year.

(*d*) AIRCRAFT INDUSTRY

The principal aircraft factories are:

1. Plage i Laskiewicz at Lublin (50 miles southeast of Warsaw). This was the first airplane factory established in Poland, dating back to 1916, and forms part of a large establishment producing boilers, refrigerators, and railway cars. The aviation section covers about 3,000 square yards and employs about 600 men. During 1922 and 1923 this company built under license from Ansaldo 50 Balilla

single-seated pursuit airplanes, but they proved complete failures, being very dangerous to fly and having a bad gliding angle. It appears that these airplanes have been abandoned, and the 220-horsepower S. P. A. engines used in them will be fitted in a new single-seater designed at the factory.

The factory has produced 400 *Potez 25* observation biplanes and is now working on an order for 100 of the *Potez 27*.

The present production is somewhat under 25 airplanes per month.

2. Wytworznia Samolotow, at Biala Podlaska, about 60 miles east of Warsaw. This factory was established in 1923 and covers an area of 8,500 square yards. So far its sole production has been Potez airplanes, including 25 of the type *25* and 135 of the type *27*. An order has now been received for 100 *Potez 25* airplanes which are being turned out at the rate of 20 per month.

3. Samolot at Posen-Lawica.

4. Frankopol at Okecie (6 miles from Warsaw). This company was organized in 1921, being a merger of French and Polish interests. It was to have manufactured *Nieuport 21* and *27* airplanes, as well as Lorraine 400 and 450 horsepower engines, and the building of a large factory covering 20,000 square yards was started. The factory is not yet finished, and the company has apparently collapsed financially. It is to be succeeded by another company with exclusively Polish capital, and it is thought that the factory will be used only for 450-horsepower Lorraine engine production.

(c) SAMOLOT AIRPLANE FACTORY, POSEN—WALNICE

The Samolot aviation factory adjoins the military aviation field at Walnice, 4 miles from Posen.

The factory is small but made up of new buildings and possessing good tool equipment. Five hundred workmen are employed.

The main work of the Samolot factory consists in building for the Polish Government, under license from France, *Hanriot 14* and *28* (Rhone 120-horsepower) and *19* (Hispano-Suiza 180-horsepower) training airplanes. The present production of the factory is 20 per month, which can easily be increased to 30 airplanes per month. The maximum possible monthly production with the present equipment is 45 airplanes per month. So far, about 300 airplanes have been built, 100 of the type *19* and 200 divided between types *14* and *28*, which are almost identical.

In addition to its main production, the factory is working on a few airplanes of original design. The first of these is a single-seated monoplane with a 120-horsepower Salmson engine designed by the director in chief of the factory, Mr. Tulacz. It is termed a "communication" airplane, but is in reality a study for a pursuit type.

The wood used in the construction of this airplane is "sosne," a Polish species of fir. This wood is claimed to be stronger than spruce, while somewhat heavier. The parasol wing is covered with plywood. The circular-section fuselage is covered with wide plywood strips laid on longitudinally and overlapping each other at the position of the stringers, which themselves are supported by transverse formers composing a series of bulkheads.

A feature reminiscent of the *Nieuport 29* is the way in which the tail fin is merged into the fuselage. The wing is of thick biconvex section.

There was also seen a two-seated training biplane (120-horsepower Rhone engine) designed by Engineer Bartel, of the Samolot Co. in the light of experience with the various *Hanriot* types.

In this airplane, known as *Bartel M. 2*, the question of interchangeability has received close study. The upper and lower wings can be interchanged by simply reversing the interplane strut fittings. Also the front and rear box section wing spars are identical.

The bottom of the wings is covered with plywood, as is also the top surface from the leading edge to the front spar. The remainder of the upper surface is covered with fabric easily removable for the purpose of inspecting the interior of the wing. The ribs which have circular lightening holes are pierced at the top with holes for attaching the cloth strips to which the wing fabric is sewed.

The interplane and landing-gear struts and fittings are of steel. Welded-steel tubes are used in which the welds work only in shear.

The thick wing section is known as *Bartel 37/11/a* and was tested at St. Cyr.

The military aviation center adjoining the Samolot factory includes a very complete repair shop, one of which is supplied for each aviation regiment.

The majority of the military airplanes seen at the field were *Potez 15* and *27*, the latter similar to the *15* except for the fact that there is only one set of interplane struts on each side of the fuselage. Both of these types use the 400-horsepower Lorraine Dietrich engine and are built under license from the Potez Co. at Lublin and Biala Podlaska.

In addition to the above types there were also observed several *Potez 25* with the 450-horsepower Lorraine Dietrich engine.

(*f*) AERODYNAMIC LABORATORY, WARSAW

The aerodynamic laboratory, which forms part of the Warsaw Polytechnic, comes under the supervision of the Polish Ministry of Education. The director of the laboratory is Professor Witoszynski.

The earliest tunnel is a small wooden one, the working section of which has a diameter of 3.28 feet at the entrance and 3.61 feet at the

exit. It is of the closed-circuit double-return type, having a 30-horsepower electric motor driving a two-bladed air screw. The usual speed is 131.2 foot-seconds, but this can be increased to 196.8 foot-seconds.

The model, suspended with the wing span arranged vertically, is stayed by wires to four points on the circumference of the wooden ring, the diameter of which is larger than that of the air stream. The base of the ring is mounted alternatively on either one of two sets of knife-edges, so that the ring tends to move about either one of the two axes at will by releasing the appropriate supports.

Projecting from the base of the ring are arms carrying scale pans on which various weights for directly measuring the forces are placed.

There is one thick semicylindrical deflector at each 180° turn of the current in the return channels.

There is now being completed a new building, shown in photograph containing two reinforced concrete tunnels built on the same principle as the original wooden tunnel. The new large tunnel has a diameter of the working section of the air stream at the entrance nozzle of 8.2 feet, and at the beginning of the exit cone of 9.2 feet.

The director does not believe in the bell-mouthed type of exit cone, as it disturbs the air, and uses instead an entrance to the working section of smaller diameter than the exit.

The 500-horsepower electric motor will give a speed of 262.5 feet per second. The director is employing a special type of air screw having five blades with very deep chord. The exceedingly large hub is prolonged backward by a wooden extension to a concrete tube through which the motor shaft runs. Professor Witoszynski believes that the inefficient portions of the air-screw blades near the hub in ordinary wind tunnels have a bad effect on the air flow.

At each change of direction of the air current there are two thick deflectors designed to maintain even speeds down the side corridors and around the turns. These deflectors have been calculated by Professor Witoszynski's method.

It was noticed that the concrete walls of the large tunnel are thin, but heavily reinforced with steel to withstand the pressure. Plaster is being used to smooth out the irregularities in the concrete. The interior dimensions of the side corridors are 7.38 feet wide by 14.76 feet high. The chamber at the beginning of the entrance cone is 14 feet square.

At the rear end of the new building is the smaller of the two new tunnels. Like the first wooden tunnel, the diameter of the new small tunnel is 3.28 to 3.61 feet. The 50-horsepower motor is expected to give a speed of 262.5 foot-seconds. A motor generator system is used for converting the alternating current supplied by the city into continuous current. There is an additional motor for varying the air speed within small limits.

It is expected that both tunnels will have a pneumatic type of pressure regulator. It was noted that the tunnels were well lighted by windows flush with the walls of the return channels and that they will both have roof balances on the second floor of the building, unlike the old wooden tunnel, the balance of which is below the working section. The models used in all the tunnels are of wood.

(*g*) CIVIL AVIATION

Civil aviation comes under the control of a bureau in the Ministry of Railways, which subsidizes the air transport companies.

In addition to the Compagnie Internationale de Navigation Aerienne, which has the concession of the Warsaw-Prague-Paris line, there are two Polish companies in operation—the Aero and the Aerolot. The former operates between Warsaw and Posen both by the direct route and via Lodz. It owns five *Farman F. 70* biplanes (200-horsepower Renault).

The Aerolot was established in 1922 and runs the following services: Warsaw-Danzig; Warsaw-Lemberg; Lemberg-Cracow; Warsaw-Cracow-Vienna.

Its material consists of 16 *Junkers F. 13* monoplanes.

The subsidies granted to the above companies for 1926 amount to about 3,000,000 zlotys (about $600,000).

NOTE.—The extensive aeronautical activities of Poland, as compared with her resources, are due to her fear of her border States, principally Russia. The latter is endeavoring to develop her aviation very thoroughly. France plays a major hand in Polish aeronautics, as she does in about all of the activities of that country, which have any relation to Russia. Russian aviation is being fostered with the technical assistance of Germany, between whom and the Poles there exists a deep-seated hatred and distrust that makes the frontiers of Poland one of the great danger lines of the world.—ED.

RUSSIA

A. MISCELLANEOUS

1. Political review.

[Source: M. I. D.]

(*a*) STABILITY OF GOVERNMENT

With the completion of nine full years since the October revolution, the Russian communist régime finds itself strongly entrenched and with no organized opponent in the field. Gradually, however, during this period there has been a destruction of practically every communist tenet—a surrender in response to the imponderable economic pressure inherent in the realities of life. Russia's status as an agricultural country in which the bulk of the revenue must necessarily arise from peasant industry compels consideration of

the needs and desires of this tremendous class, communist theory notwithstanding. The conflicting interests of the peasants and workers thus cause a pendulum-like swing in the policy of the ruling group—from radicalism to conservativeness and back again. Due to the unequal economic weight, the odds appear hugely in favor of the less politically favored group, and a slow but ultimate evolution along more conservative methods of government is therefore anticipated.

(*b*) INTERNAL POLITICAL ISSUES

The ultimate purpose of the present soviet government is the realization of communist principles throughout the world. This policy is still overshadowed by the economic crisis, which compels the leaders to cater to the interests of a class at home—the peasantry—which, under normal proletarian administration, exercises little or no influence, and to restrict in some measure, because of lack of funds, their efforts toward undermining foreign governments. Economic recovery continues to be the major question in the Russian situation. The chief obstacle to a rapid return to normalcy is the impossibility of securing capital for floating large industries destroyed by the World War, by civil war, and through communist mismanagement. Internal capital was abolished by the communists, and foreign capital still appears unwilling to undertake the risk involved. The only remaining possibility of building up slowly from within has been adopted by the leaders, but the low price of wheat and the high cost of manufactured goods to the peasant have been the source of much anxiety. An effort is being made to establish closer political and economic relations with some of the larger nations; but so far negotiations have not brought any real improvement in the situation, the two questions of Russian debts and foreign propaganda forming a seemingly insurmountable barrier to mutually profitable intercourse.

(*c*) FOREIGN POLICIES AND RELATIONS

In its nature and in its aims the soviet government is different from every other government in the world. By its own confession it is not a national government, but an organization working internationally with a subversive purpose. All internal and international problems and issues are subordinated to the principle of establishing communism throughout the world. It is only to further this purpose that the present group in power is trying to ameliorate the internal economic situation. Even with Russia as a lever the probability of the communist leaders' inaugurating world proletarian rule is small, but without it it would be next to impossible. The soviets are beginning to manifest a nationalistic policy as in contrast to their

previous internationalism. Generally speaking, this may be said to be the result of the embarrassing economic situation, which has compelled the leaders to conciliate the peasantry, a class to whom internationalism means nothing.

(*d*) RELATION WITH OTHER IMPORTANT POWERS

Except for the United States the soviet union has now been recognized de jure by all the first-class powers of the world. But so far recognition has not been instrumental in promoting commerce between the countries granting recognition and the union. Under the present Russian system it is practically impossible to carry on business with any degree of security for investment. The principle of government-trade monopoly permits wholesale rearrangement of existing economic relations. (An example of this was the removal of the entire trade delegation from France to Great Britain following the unfavorable decision of the French courts in the Optorg-Buniatyan case.) Moreover, the periodic campaigns of the authorities against private trade disrupt enterprise and create a sense of instability and apprehension which destroys business confidence.

United States.—The policy of the United States regarding recognition of Soviet Russia remains unchanged. While the soviet government claims to desire political relations with the United States, chiefly because that country is practically the only one from which loans and credits of any practical size can be obtained at present, it has so far been unwilling to meet the conditions laid down by Secretary Hughes. A considerable amount of trade between the two countries is carried on now, there being no legal restriction whatever to private trade and commerce as far as the United States is concerned.

Japan.—Relations between Japan and Soviet Russia have been outwardly friendly, but a keen competition for economic dominance continues in Manchuria. While the probability of an armed conflict between Russia and Japan in the near future is less discussed now than a year ago, such an eventuality is not impossible.

China.—Russia's influence with the Kuomintang, who control the enormous territory of central China with its population of 200,000,000, has been increased by the victories of the Kuomintang forces, armed and advised by the soviets. Moreover, the Christian General Feng, who not long ago visited Moscow at the invitation of the soviet government and receives most of his supplies from Moscow through Mongolia, is supporting the Kuomintang (nationalist party) and is expected to cooperate with the Kuomintang forces in future operations. While it is possible that this group will secure and maintain control throughout China south of the Great Wall, penetration farther north is improbable, since Manchuria continues to be dominated by Chang Tso-lin, who is firmly entrenched there. Growing soviet

prestige is the source of considerable concern to foreign nations interested in China, especially Great Britain. It is generally conceded, however, that the bulk of the Kuomintang is nationalistic rather than internationalistic and that it will accept the help of Moscow only so long as it is needed. Whether soviet intrigue can be dismissed offhand in such an eventuality remains for the future to disclose.

(c) GENERAL INTERNATIONAL POLITICAL SITUATION

In conclusion, it may be stated that while the return of Russia to her pre-war place among nations is unquestionably important, as well as highly desirable, to world progress, closer intercourse seems almost impossible. It is apparent that up to the present time the leading countries of the world have felt that such intercourse would be dearly purchased at the cost of internal disturbances through subversive propaganda and the surrender of principles which have obtained the sanction of international usage. It remains to be seen whether the soviet government can offer sufficient inducements to change this decision.

NOTE.—The above is believed to constitute a very excellent brief review of soviet political factors. However, the following additional notes may be of interest. Internal politics is dependent upon a compromise between the agricultural peasant and the industrial proletarian. Trotsky's group demands full support of the latter: the present government favors the peasant, who is the backbone of Russian economic life. World revolution is still the avowed end of communism. In this the radical Russian party has not changed. Their activities at present along this line are largely centered in the Middle and Far East, since they have been defeated in the west. Hence their foreign policy is largely a compromise between revolutionary activities and normal, economic relations which are essential to life. However, nationalism in foreign policies always has and always will be the backbone of soviet foreign policy where Russian national interests (as opposed to purely revolutionary ones) are concerned. This is evidenced in the Baltic question, in Bessarabia, in Afghanistan, in Manchuria. Russia's relations with foreign powers are largely on a hand-to-mouth basis. The recent severe British note to Moscow is evidence of how little "recognition" of Moscow really means. This note is a vindication of our own policy toward the soviet government. Soviet support of the Kuomintang is purely a communistic move. Let the Kuomintang gain control over all China and endeavor to enforce Chinese rights in Manchuria and along the Chinese Eastern Railroad, and we would soon see the soviet bitterly opposing them. But in south China, and as an anti-British movement, communism strongly encourages Chinese nationalism.—ED.

SWEDEN

A. NAVAL

1. Increase of the Swedish Navy.

In 1925 the Government appointed a committee to study the needs of the Swedish Navy. This committee was composed of the then

Minister of Defense, Per Albin Hansson, chairman; Mr. Anders Andersson, chief of bureau in the Kammarrätten (a court of law); Mr. J. B. Johansson, Mr. August Danielson, and Mr. Johan B. Eriksson, all members of the Riksdag; and Vice Admirals von Krusenstierna and Lindberg. The committee has now finished its labors and has made a unanimous report in which it recommends the following increase in the Swedish fleet: 4 armored cruisers, 2 divisions (8) of destroyers, 1 aircraft carrier, 2 divisions (8) of torpedo boats, 9 submarines (3 of the A type, 6 of the B type), and 2 supply ships.

The committee recommends that the construction of these ships should be spread over a period of 10 years and recommends an appropriation of 46,630,000 kroner (about $12,000,000) for the first 5 years (9,198,000 kroner annually during the fiscal years 1928–1933) and an appropriation of 59,400,000 kroner (about $15,000,000) for the second 5 years (11,880,000 kroner annually).

The committee further recommends that its report be submitted to the consideration of the 1927 session of the Riksdag.

This report, as was to be expected, has been the subject of wide comment in the press, which has generally followed party lines—the Conservative supporting the recommendation of the report, the Social Democratic criticizing it, and the Liberal press (of the party in power) taking a noncommittal attitude so as not to embarrass the government before the opening of the Riksdag.

Emphasis has been laid on the unanimity of the agreement reached by a committee on which have served representatives of various political parties and opinions, although it is considered in some quarters that the recommendations bear the marks of a compromise. Aside from some criticism of the increase of the budget for many years which an acceptance of the recommendation would necessitate, it can be said that the proposal has, on the whole, met with a sympathetic reception.

Mr. Rosen, the Minister for Defense, has been quoted in Svenska Morgonbladet of December 31 as stating that the recommendations of the naval committee have been submitted to various government authorities for consideration and report by the middle of January. He makes clear that the government has reached no decision as to the attitude it will take on the report and that before giving it full consideration it will await the reports requested of the various government departments.

It is expected that this question will be warmly debated when submitted to the Riksdag.

NOTE.—An outline of the organization of the Swedish Navy was given in the BULLETIN of December last. The Swedish Navy is in the middle of a building program of 2 submarines, 2 destroyers, and 2 submarine chasers, all of modern design. If the above report is put into effect, Sweden will probably have the most effective naval force in the Baltic. All of the Baltic States are concentrating on the building of light craft.—ED.

TURKEY

A. NAVAL

1. Repair of "Yavouz."

The contract for the repair of the battle cruiser *Yavouz* (ex-*Goeben*) was signed about the 1st of December, 1920, with a company at St. Nazaire, France.

On about the 15th of December, 1920, the *Yavouz* was placed in the new floating dry dock at Ismid for examination preparatory to the repairs which are being undertaken by the French company. When pumping out the dock the weight of the ship was taken on the bilge blocks before she had settled on the keel blocks, thus resulting in considerable damage to the dock. The floor of the dock buckled badly, and the buckling extended to the sides.

The dock and the ship were both insured with Lloyd for this first docking: the dock for 35,000 lstg. (about $1,680,000), and the ship for 1,000,000 lstg. (about $4,800,000). The estimated damage to the dock is 50,000 lstg. (about $240,000). It is not known whether or not the ship was damaged.

The attempt on the part of the Turkish Government to revamp the *Yavouz* is of interest. During the war she was mined at least twice with serious hull damage. During the occupation she was allowed to deteriorate and was probably the victim of sabotage. Since passing again to the control of the Turks she has been subject to continued deterioration without adequate means being available for her rehabilitation.

Several years ago Turkey entered into negotiations with a German firm for a dry dock large enough to receive the *Yavouz*. This dock has recently been received at Ismid. Negotiations were at once entered into for the overhaul of the *Yavouz*. The contract was let to a French firm at a figure reliably stated to be no more than $1,500,000. The German bid, I have been told, was $3,000,000. Persons informed as to the condition of the *Yavouz* state that the French bid will fit the ship up so that it will look like one and will be safe for touring Turkish ports for political effect, but that it will not have any real value as a battleship. It may be assumed, then, that the Turks are investing this money in something they know to be for "home consumption."

As the dock was fully insured with Lloyd's, it is only a question of temporary delay until the work on rehabilitation of the *Yavouz* will be undertaken.

NOTE.—The above repairs to the *Yavouz* are the result of long negotiation and propaganda and arguments pro and con. The *Yavouz* is undoubtedly in a very deteriorated condition, but if repaired her 11-inch guns and her speed will make her by far the most effective ship in the Black and Aegean Seas.—ED

2. Acquisition of mine sweepers.

The Turkish Government has just received the delivery of six mine sweepers which were constructed by the company of Burn & Shon, Hamburg, Germany. The following is a description:

Displacement	25 tons.
Length	48 feet.
Beam	10 feet.
Each to carry four torpedoes.	
Speed	8½ knots.

They are built of wood, have one portable mast, and one gasoline motor of 60-horsepower making 750 revolutions.

Of the six mine sweepers, three have been assigned to the Gulf of Ismidt and three to Smyrna.

NOTE.—The acquisition of these mine sweepers, together with the repair of the *Yavouz*, mark about the first effective steps of the new Turkey toward creating some sort of a naval establishment.—ED.

SPECIAL ARTICLES

1. Status of foreign countries in regard to their relations with the United States.

[Reference: January BULLETIN, article on above subject]

The following notes are in correction explanation, or amplification of the original article as given in the January BULLETIN.

(*a*) In the reference article the Government of Afghanistan was listed as being among those which the United States does not recognize. This is an error; the United States does recognize the Government of Afghanistan, but it has not established normal diplomatic relations with it. There is no United States representative in Afghanistan, either diplomatic or consular.

(*b*) In the reference article under "B," "Ethiopia Abyssinia" should be changed to read "Ethiopia (Abyssinia)," as the two are synonymous as used here. Also, under "B," "Maskat" should be omitted. The Sultan of Maskat is the ruler of the Kingdom of Oman.

(*c*) "D" in the reference article would be clearer if the "Flag of Danzig should be saluted here" be changed to "Flag of Danzig should be saluted in Danzig"; and if "The flag of Iceland should be saluted here" be changed to "The flag of Iceland should be saluted in Iceland"; and if under "Anglo-Egyptian Sudan" and "New Hebrides" the sentences "Neither diplomatic nor consular representatives here" be changed to "No United States diplomatic nor consular representatives in this territory."

(*d*) In the reference article, under "E–1," "'A' mandates," our relations with "A" mandate territories might be better defined by changing the first part of the second paragraph to read as follows: "Our relations with these territories are more in doubt than are those under 'B' and 'C' mandates. We are now concluding a triparte treaty with Great Britain and Iraq which will have the effect of recognizing the sovereignty of the King of Iraq, consistent with the mandate. We have treaties with Great Britain and France regarding the rights of the United States and its nationals, respectively, in Palestine and Syria. At the present time," etc.

(*e*) Since the publication of the reference article the following changes have occurred in our relations with foreign governments:

(1) A minister plenipotentiary of the Dominion of Canada has been received by the United States. It is interesting to note that although representing Canada, this minister's credentials were from the British King. Thus direct diplomatic relations are at present established between the United States and two of the British Dominions—namely, Canada and the Irish Free State.

(2) Our Government has announced the selection of ministers plenipotentiary to Canada and to the Irish Free State, the only British Dominions which will have accredited to them diplomatic representatives of the United States.

(*f*) The following extracts from a recent letter of the Department of State are quoted with the object of clarifying certain of the doubtful points in the reference article:

(1) It is the department's opinion that a vessel of the United States Navy entering a port of the Anglo-Egyptian Sudan or of the New Hebrides should fly at an equal height the flags, respectively, of Great Britain and Egypt or of Great Britain and France. The sovereignty in these territories is a joint sovereignty, and the national salute is to that joint sovereignty. There would, therefore, be no question of precedence as between the flags of the nations represented in the respective condominiums.

(2) It is the department's opinion that a vessel of the United States Navy entering a port of any of the A, B, or C mandate territories (except Iraq) should salute the flag of the mandatory. In the case of Iraq the salute should be fired to the national flag of the Kingdom of Iraq. Although the United States has not as yet recognized the independence of Iraq, negotiations to that end are being conducted at the present time, and it is not felt that the saluting of the Iraqui flag by an American naval vessel would in any way prejudice the American position with respect to that territory.

(3) At the present time the British flag should be saluted by vessels of the United States Navy entering ports of the British Dominions.

(*g*) The Iraq flag should be of the following form and dimensions: Its length shall be double its breadth and it shall be divided horizontally into three parallel and equal strips, the uppermost being black, the next white, and the next green. It shall bear a red truncated cone on the side of the staff, of which the greater base shall be

equal to the breadth of the flag, the smaller base equal to the breadth of the white strip, and the height equal to one-fourth of the length of the flag. In the middle of the cone shall be two white stars of seven points in a perpendicular position parallel to the staff. The disposition of the flag and the arms and decorations of the State shall be regulated by a special law.

2. TREATY NAVIES.

[Information as of October 1, 1926. Source: O. N. I.]

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(a) United States Navy Department list of the limiting characteristics of the several classes of naval vessels

Designation	Class	Main battery	Displacement	Speed
		Inches	*Tons*	*Knots*
BB	Battleships, first line	+12	+20,000	+20
OBB	Battleships, second line	+12	−20,000	−20
BM	Monitors, first line	+14	+6,000	
OBM	Monitors, second line	−12	−6,000	
CC	Battle cruisers, first line	+13.5	+27,000	+27
OCC	Battle cruisers, second line			
CA	Cruisers, first line	+12	+10,000	+27
OCA	Cruisers, second line	+8	+8,000	−27
CL	Light cruisers, first line	5–8	3,000–10,000	+27
OCL	Light cruisers, second line	−8	3,000–8,000	−27
CV	Aircraft carriers, first line	−8	+20,000	+20
OCV	Aircraft carriers, second line	−8	−20,000	−20
CM	Mine layer, first line	−8	3,000–10,000	+27
OCM	Mine layer, second line	−8	+3,000	−27
DD	Destroyer, first line	+4	800–1,500	+27
ODD	Destroyer, second line	−4	500–800	+25
DL	Destroyer leader	+4	+1,500	+27
DM	Light mine layer	−5	−3,000	+27
SS	Submarine, first line	+3	+700	+13
OSS	Submarines, second line	−3	−700	+10
SF	Fleet submarine, first line	+3	+1,000	+20
OSF	Fleet submarine, second line	3	+1,000	−20
SC	Cruiser submarine	+4	+2,000	+16
SM	Mine-laying submarine, first line	+3	+800	+10
OSM	Mine-laying submarine, second line	3	−800	+8
SB	Monitor type submarine	+6	+1,000	+12
PE	Eagle	4–3	100–500	+14
PC	Submarine chaser	+3	−100	−14
PG	Gunboat	+3	500–3,000	−20

Numbers and tonnages—Navies of the United States, British Empire, Japan, France, and Italy

(*b*) SHIPS AFFECTED BY THE TREATY (CAPITAL SHIPS AND AIRCRAFT CARRIERS)

Type	United States		British Empire		Japan		France		Italy	
	Number	Tonnage	Number	Tonnage	Number	Tonnage	Number	Tonnage	Number	Tonnage
Battleships, first line:										
Built	18	525,850	18	457,750	6	191,320	6	138,768	5	108,360
Building			[1] 2	70,000						
Battleships, second line: Built							3	55,776	2	25,310
Battle cruisers, first line: Built			4	122,700	4	110,000				
Total capital ships, built	18	525,850	[2] 22	580,450	10	301,320	9	194,544	7	133,670
Aircraft carriers, first line:										
Built			2	41,890						
Building	2	66,000	2	37,200	2	53,800	1	21,160		
Aircraft carriers, second line: Built	1	12,700	2	25,400	1	9,500				
Total aircraft carriers, built and building	3	78,700	6	104,490	3	63,300	1	21,160		

(*c*) FIRST LINE COMBATANT SHIPS (NUMBERS NOT AFFECTED BY THE TREATY)

Light cruisers, first line:										
Built	10	75,000	40	194,290	19	102,005	3	16,731	8	30,784
Building	2	20,000	11	110,000	6	54,200	6	53,619	2	20,000
Authorized and appropriated for	3	30,000	3	28,000			1	10,000		
Total	15	125,000	54	332,290	25	156,205	10	80,350	10	50,784
Authorized but not appropriated for	3		9				2			
Mine layers, first line: Building			1	6,740			1	4,000		
Destroyer leaders, first line:										
Built			18	31,310			4	9,144	8	14,889
Building							6	14,577		
Authorized and appropriated for					4	7,400	3	8,070		
Total			18	31,310	4	7,400	13	31,791	8	14,889
Authorized but not appropriated for							9			
Destroyers, first line:										
Built	262	312,479	169	194,575	78	85,650	20	20,062	20	18,111

Building			2	2,540	6	8,670	21	30,580	15	19,112
Authorized and appropriated for					8	11,560	4	5,980		
Total	262	312,479	171	197,115	92	105,880	45	56,622	35	37,223
Authorized but not appropriated for	12		27				10			
Light mine layers, first line:										
Built	14	16,674			4	[3] 2,800			1	584
Building									9	6,486
Total	14	16,674			4	[3] 2,800			10	7,070
Fleet submarines, first line:										
Built	6	[4] 9,675	4	8,680	6	10,110				
Building			3	4,145	5	7,000			4	5,200
Authorized and appropriated for			6	8,070	9	11,970				
Total	6	9,675	13	20,895	20	29,080			4	5,200
Authorized but not appropriated for	3		18							
Cruiser submarines, first line:										
Building	2									
Authorized and appropriated for							1	3,250		
Authorized but not appropriated for							1			
Submarines, first line:										
Built	50	43,822	28	25,150	43	34,834	19	17,509	9	7,167
Building			1	890	2	1,663	14	18,871	9	7,145
Authorized and appropriated for							5	7,750		
Total	50	43,822	29	26,040	45	36,497	38	44,130	18	14,312
Authorized but not appropriated for	1						16			
Mine-laying submarines, first line:										
Built			3	2,670			3	2,988		
Building	1				3	3,000	2	6,000		
Authorized and appropriated for							1	760		
Total	1		3	2,670	3	3,000	6	9,748		
Authorized but not appropriated for							3			
Monitor type submarines, first line: Built			2	3,200						
Monitors, first line: Built			3	22,670						

[1] Nelson and Rodney building to replace Ajax, Centurion, King George V, and Thunderer. When this replacement is effected capital ship tonnage for British Empire will be 558,950 tons (20 ships).

[2] One seaplane carrier is building in Australia.

[3] Speed of only 20 knots.

[4] Includes T-1, T-2, and T-3. Out of commission.

Numbers and tonnages—Navies of the United States, British Empire, Japan, France, and Italy—Continued

(*d*) SECOND LINE COMBATANT SHIPS (OBSOLESCENT) (NUMBERS NOT AFFECTED BY THE TREATY)

Type	United States		British Empire		Japan		France		Italy	
	Number	Tonnage	Number	Tonnage	Number	Tonnage	Number	Tonnage	Number	Tonnage
Cruisers, second line: Built	11	139,450			7	64,008	10	118,333	3	31,228
Light cruisers, second line: Built	11	39,975	9	48,380	6	27,362	1	3,495	2	6,274
Mine layers, second line:										
Built	4	16,096	1	5,070	3	19,685				
Authorized and appropriated for					1	3,000				
Total	4	16,096	1	5,070	4	22,685				
Destroyers, second line: Built	8	5,936	6	4,200	12	7,850	27	19,126	30	22,525
Fleet submarines, second line: Built			1	1,200			1	2,027		
Submarines, second line:										
Built	65	31,282	24	10,368	10	3,259	23	10,076	31	8,761
Building							12	7,140		
Authorized and appropriated for							4	2,520		
Total	65	31,282	24	10,368	10	3,259	39	19,736	31	8,761
Mine-laying submarines, second line: Built							3	1,658	2	704
Monitors, second line: Built			2	11,600						

(*e*) PATROL VESSELS

Gunboats:										
Built	5	6,587	59	61,442	7	8,883	55	44,016	5	6,725
Building			4							
Total	5	6,587	63	[1] 61,442	7	8,883	55	44,016	5	6,725
Authorized but not appropriated for			1							
River gunboats:										
Built	4	993	18	8,665	7	1,908				
Building	6	2,790								
Authorized and appropriated for							1	720		
Total	10	3,783	18	8,665	7	1,908	1	720		

Yachts: Built	8	9,127	3	10,515			1	1,181	4	7,079
Patrol vessels (100–500 tons): Built	53	26,500	58	14,138	23	8,763	46	9,543	73	14,571
Patrol vessels (under 100 tons):										
Built	30	2,310	31	396	3	[6] 35	53	3,721	228	4,819
Building									4	84
Authorized and appropriated for			4							
Total	30	2,310	35	[7] 396	3	35	53	3,721	232	4,903

(*j*) AUXILIARIES

Destroyer tenders: Built	9	101,900	2	20,100						
Submarine tenders:										
Built	9	68,443	10	49,471	5	32,646			2	4,724
Authorized and appropriated for			1				1	6,000		
Total	9	68,443	11	[8] 49,471	5	32,646	1	6,000	2	4,724
Authorized but not appropriated for			1							
Heavier-than-air, aircraft carriers:										
Built	1	11,500	2	10,150	2	21,275				
Building							1	8,000	1	5,000
Repair ships:										
Built	3	26,200	1	9,600	1	2,270	2	16,231		
Building									1	8,140
Authorized and appropriated for			1							
Total	3	26,200	2	[9] 9,600	1	2,270	2	16,231	1	8,140
Store ships: Built	5	61,500			1	17,500	6	4,281	4	4,556
Colliers: Built	5	96,140	1	[10] 9,700			1	2,304		
Oilers:										
Built	20	[11] 281,496	66	504,884	13	181,550	9	68,860	8	47,554
Building							1	9,900	1	11,700
Authorized and appropriated for							2	14,000		
Total	20	[11] 281,496	66	504,884	13	181,550	12	92,760	9	59,254
Authorized but not appropriated for							2			

[5] Does not include tonnage of 4 gunboats.
[6] There are 5 additional picket boats built and other building of which no details are known.
[7] Does not include tonnage of 4 patrol vessels authorized.
[8] Does not include tonnage of one submarine tender authorized and appropriated for.
[9] Does not include tonnage of one repair ship authorized and appropriated for.
[10] Other colliers are chartered.
[11] Patoka is fitted with mast for mooring lighter-than-air aircraft. Present duty, tender for lighter-than-air aircraft.

Numbers and tonnages—Navies of the United States, British Empire, Japan, France, and Italy—Continued

(*f*) AUXILIARIES—Continued

Type	United States		British Empire		Japan		France		Italy	
	Number	Tonnage	Number	Tonnage	Number	Tonnage	Number	Tonnage	Number	Tonnage
Ammunition ships: Built	2	21,200							3	3,074
Cargo ships: Built	6	59,680	6	7,074	4	31,789			4	33,470
Transports:										
Built	2	23,400					8	8,801	1	3,560
Authorized but not appropriated for	1	10,000								
Hospital ships: Built	3	25,817	1	10,100			1	5,678		
Ocean tugs: Built	37	32,625	42	31,024	[12]		29	20,860	3	3,591
Mine sweepers:										
Built	43	40,850	65	49,354	18	[13] 6,901	29	10,310	39	[14]
Building					2	1,400				
Total	43	40,850	65	49,354	20	8,301	29	10,310	39	[14]
Surveying ships: Built	1	4,000	10	11,880	9	11,097	10	5,481	5	3,795
Auxiliaries, miscellaneous:										
Built	4	34,565	2	1,531	4	64,725	2	19,041	1	7,232
Building									1	3,000
Authorized and appropriated for							1			
Total	4	34,565	2	1,531	4	64,725	3	[15] 19,041	2	10,232
Authorized but not appropriated for			1							

[12] There are about 35 small tugs, believed to be under 300 tons, of which details are not known.
[13] There are about 35 additional vessels similar to tugs, varying from 100 to 300 tons, equipped for harbor sweeping.
[14] Tonnage not known.
[15] Does not include tonnage of one auxiliary authorized and appropriated for.

(g) *Building programs, numbers, and tonnages*

UNITED STATES

SHIPS BUILDING, SHIPS AUTHORIZED AND APPROPRIATED FOR, AND SHIPS AUTHORIZED BUT NOT APPROPRIATED FOR

Type	Ships building		Ships authorized and appropriated for		Ships authorized but not appropriated for
	Number	Tonnage	Number	Tonnage	Number
Aircraft carriers, first line	2	66,000			
Light cruisers, first line	2	20,000	3	30,000	3
Destroyers, first line					12
Fleet submarines, first line					3
Cruiser submarines, first line	2				
Submarines, first line					1
Mine-laying submarines, first line	1				
River gunboats	6	2,790			
Transports					1
Total	13	[1] 88,790	3	30,000	20

[1] Does not include tonnage of 2 cruiser submarines and 1 mine-laying submarine.

BRITISH EMPIRE

SHIPS BUILDING, SHIPS AUTHORIZED AND APPROPRIATED FOR, AND SHIPS AUTHORIZED BUT NOT APPROPRIATED FOR

Type	Ships building		Ships authorized and appropriated for, year 1926–27		Ships authorized but not appropriated for					
					Year 1927–28		Year 1928–29		Year 1929–30	
	Number	Tonnage	Number	Tonnage	Number	Tonnage	Number	Tonnage	Number	Tonnage
Battleships, first line	2	70,000								
Aircraft carriers, first line	2	[1] 37,200							1	
Light cruisers, first line	11	110,000	2	20,000	1	10,000	1	10,000	1	10,000
Do			1	8,000	2	16,000	2	16,000	2	16,000
Mine layers, first line	1	6,740								
Destroyers, first line	2	2,540			9		9		9	
Fleet submarines, first line	3	4,145	6	8,070	6		6		6	
Submarines, first line	1	890								
Gunboats	4						1			
Patrol vessels (100 tons minus)			4							
Submarine tenders			1				1			
Repair ships			1							
Auxiliaries, miscellaneous (net layer)									1	
Total	26	[2] 231,515	15							

[1] Courageous and Glorious.

[2] Does not include tonnage of 4 gunboats.

JAPAN

SHIPS BUILDING AND SHIPS AUTHORIZED AND APPROPRIATED FOR TO BE COMPLETED BY 1931

Type	Ships building		Ships authorized and appropriated for to be completed by 1931	
	Number	Tonnage	Number	Tonnage
Aircraft carriers, first line	2	53,800		
Light cruisers, first line	6	54,200		
Destroyer leaders, first line			4	7,400
Destroyers, first line	6	8,670	8	11,560
Fleet submarines, first line	5	7,000	9	11,970
Submarines, first line	2	1,663		
Mine-laying submarines, first line	3	3,000		
Mine sweepers	2	1,400		
Mine layers, second line			1	3,000
Total	26	129,733	22	33,930

REPLACEMENT BUILDING PROGRAM

In addition to the above the Japanese Administration has fixed upon the following five-year "replacement" building program. This involves the expenditure of 261,000,000 yen, which is a compromise from the original figure of 325,000,000 yen. This program has not as yet been formally authorized by the Diet which is to meet December 24, 1926. There is every reason to believe that authorization will be forthcoming shortly after the Diet meets.

4 cruisers (10,000 tons).
15 destroyers.
4 submarines (fleet or cruiser).
2 gunboats.
1 mine layer.
1 airplane carrier or tender.

FRANCE

SHIPS BUILDING, SHIPS AUTHORIZED AND APPROPRIATED FOR, AND SHIPS AUTHORIZED BUT NOT APPROPRIATED FOR

Type	Ships building		Ships authorized and appropriated for, year 1926		Ships authorized but not appropriated for					
					Year 1927		Year 1928		Year 1929	
	Number	Tonnage	Number	Tonnage	Number	Tonnage	Number	Tonnage	Number	Tonnage
Aircraft carriers, first line	1	21,160								
Light cruisers, first line	6	53,619	1	10,000	1		1			
Destroyer leaders, first line	6	14,577	3	8,070	3		3		3	
Destroyers, first line	21	30,580	4	5,980	4		4		2	
Mine layers, first line	1	4,000					1			
Cruiser submarines, first line			1	3,250			1			
Submarines, first line	14	18,871	5	7,750	5		6		5	
Mine-laying submarines, first line	2	6,000	1	760	1		1		1	
Submarines, second line	12	7,140	4	2,520						
River gunboats			1	720						
Oilers	1	9,900	2	14,000	2 between 1927–28					
Submarine tenders			1	6,000						
Heavier-than-aircraft tenders	1	8,000								
Auxiliaries, miscellaneous (school ship, cruiser)			1							
Total	65	173,847	24	[1] 59,050						

[1] Does not include tonnage of auxiliary (school ship, cruiser).

ITALY

SHIPS BUILDING

Type	Ships building	
	Number	Tonnage
Light cruisers, first line	2	20,000
Destroyers, first line	15	19,112
Light mine layers [1]	9	6,486
Fleet submarines, first line	4	5,200
Submarines, first line	9	7,145
Patrol vessels	4	84
Oilers	1	11,700
Repair ships	1	8,140
Heavier-than-aircraft tenders	1	5,000
Auxiliaries, miscellaneous	1	3,000
Total	47	85,867

[1] To be combined mine layers and mine sweepers; speed, 10-15 knots.

It is believed that in all foreign countries the authorization of a building program extending over a period of years is invariably supported by the necessary appropriations from year to year.

(h) Comparative personnel strengths

[Japanese information as of July 1, 1926]

Items	United States			British Empire [1]		
	Officers	Men	Total	Officers	Men	Total
1. Regular navy	8,531	[2] 82,910	[3] 91,441	[4] 7,801	[2] 82,637	[3] 90,438
2. Royal Australian Navy				395	4,555	4,950
3. Royal Canadian Navy				43	372	415
4. New Zealand Division of Royal Navy				63	825	888
5. South African Division of Royal Navy				15	116	131
6. Royal Indian Marine				151	909	1,060
7. Royal air force personnel assigned to naval aviation				[5] 306	[5] 2,795	[5] 3,101
8. Civilian crews of auxiliaries				528	3,626	[6] 4,154
Total	8,531	82,910	91,441	9,302	95,835	105,137

Items	Japan			France			Italy		
	Officers	Men	Total	Officers	Men	Total	Officers	Men	Total
Regular navy	7,703	68,338	[3] 76,041	3,570	53,000	[3] 56,570	2,710	40,124	42,834

[1] Regarding Dominion navies and India, the figures relate to the following dates:
Dominion ratings, active service and reserves — Australia, Canada, New Zealand — Mar. 31, 1926.
Royal Navy ratings, reserves — Australia, Canada, New Zealand — Mar. 31, 1926.
South Africa — Aug. 31, 1926.
India — As per R. I. M. estimates 1926–27.

[2] 16,041 recruits were enlisted in United States Navy; 6,862 recruits were enlisted in British Navy—year ending Sept. 30, 1926.

[3] Percentage of officers and men afloat:

	United States	British Empire	Japan
	Per cent	*Per cent*	*Per cent*
Officers	55½	56.35	50
Men	73½	64.10	60

British figures exclude those attached to harbor ships at home and abroad and are as of June 15, 1926. Japanese figures are estimated.

(Footnotes continued on following page)

Assignment of officers and men of regular United States Naval Establishment to United States naval vessels which correspond to those vessels of the British Naval Establishment, manned by civilians

Type	Total number	Percentage of sea transportation of fuel, stores, etc., for United States naval use which is done in: (*a*) Government-owned vessels, and (*b*) commercial vessels:
Oilers	1,207	Oil fuel.. 92 per cent in Government-owned vessels. 8 per cent in commercial oilers.
Store ships, cargo ships	796	Coal..... 100 per cent in commercial vessels.
Ammunition ships	214	Stores.... 33⅓ per cent in Government-owned vessels. 66⅔ per cent in commercial vessels.
Hospital ships	760	United States naval expenditures for freight, fiscal year 1926, covering shipments after original delivery to the Government, were $1,090,000. Corresponding appropriations under the British naval estimates for 1926 are $1,020,000.
Ocean tugs	341	
District vessels	778	
Total	4,096	

Allocation civilians on mercantile or yard craft agreement for British Navy

Type	Total number	Percentage of sea transportation of fuel, stores, etc., for naval use which is done in merchant vessels or auxiliaries with mercantile marine crews:
Tankers	1,800	Oil fuel.. 100 per cent in Government-owned auxiliaries with mercantile marine crews; nil in commercial tankers.
Various yard craft	1,485	Coal..... 100 per cent in commercial vessels.
Naval armament vessels	193	Stores.... 20 per cent in Government-owned auxiliaries with mercantile marine crews. 42 per cent in other Government-owned auxiliaries with yard craft crews. 38 per cent in commercial vessels.
Victualling yard craft	273	
Hospital ships	107	
Fleet service tugs	77	
Ferry service	101	
Harbor launches	118	
Total	4,154	

NOTE.—The number of midshipmen under training is as follows: United States, 1,695; British Empire, 807 (including 737 cadets and 70 engineering midshipmen); Japan, 774 (as of Oct. 1, 1925).

(*i*) *Remarks on enlistments*

UNITED STATES

Enlistments in the Navy are for 4 or 6 years. Extensions of enlistments may be made for 1, 2, 3, and 4 years.

An examination of the enlisted personnel as of September 30, 1926, shows the following:

Men with less than 4 years' service	48,897
Men with 4 and less than 8 years' service	20,015
Men with 8 and less than 12 years' service	7,838
Men with 12 and less than 16 years' service	4,650
Men with more than 16 years' service	1,510

NOTE.—The handicap which a short period of enlistment places upon a Navy should be recognized in connection with this general comparison of personnel.

The short period of enlistment in the United States Navy, with its accompanying heavy turnover in men, necessitates large items in cost and personnel to handle matters of recruiting, training, and transportation. As illustrating this point, the United States Navy has need of more than 800 enlisted men in the recruiting service. Great Britain, with a relative small yearly turnover in personnel, needs but 29. Different economic conditions in the two countries also bear upon the subject. Great Britain benefits by the longer periods of enlistments in reduced operating costs. Seasoned personnel in long enlistments require less steaming and gunnery exercises, less instruction at shore establishments and aboard ship, to maintain the same relative efficiency with a personnel in short periods of enlistments.

(Footnotes continued from preceding page)

[4] Does not include 188 cadets undergoing training in battleships and battle cruisers. Does include 125 naval constructors and 75 civil engineers. Naval constructors and civil engineers do not hold commissions in the British Navy but perform duties similar to those of naval constructors and civil engineers, United States Navy.

[5] Estimated. The Royal Air Force supplies a large proportion of personnel for naval aviation. The only strictly naval personnel in naval aviation consists of approximately 150 officers and 420 enlisted men, which are not included in item (7) but are included under item (1). Six hundred and seventy-seven officers and 3,798 men are employed in United States naval aviation, exclusive of those for general service in aircraft carriers, tenders, etc. The figures shown for the Royal Air Force in item (7) are those attached to the coastal area headquarters for aircraft carriers, for flights abroad, etc. On Aug. 31, 1926, the total strength of the Royal Air Force was 3,447 officers, including 103 cadets, 28,560 airmen and, 9,804 civilians and natives. Of these totals, 2,453 officers, including 103 cadets, 20,809 airmen, and 3,801 civilians, were in home stations, such as air ministry, training stations, supply depots, manufacturing plants, etc., the duty performed being for both that portion of the air force detailed to fleet air arm and that portion serving in cooperation with the army and as a separate air force, a portion of this personnel should be considered in making a comparison.

[6] The total figure, 4,154, was estimated to be comprised of 528 officers and 3,626 men, all of whom are paid under British naval appropriations. In the United States and other navies similar duties are performed by regular officers and enlisted personnel, except that an average of 100 civilians are employed under the United States Navy Department for yard craft, ferry service, barges, and lighters.

[7] Figures as of July 1, 1926. There were 675 officers and 6,100 men in Japanese naval aviation on Sept. 1, 1926.

[8] French total includes 218 officers and 3,650 men in naval aviation.

BRITISH EMPIRE

Number of petty officers, etc., Royal Navy:	
Chief petty officers	9,209
Petty officers	11,177
Leading ratings	11,448
A. B. ratings	37,247
Ordinary ratings	5,986
Boys (service) seamen class	3,539
Boys under training, seamen class	3,050
Boys under training, artificer class	766
Boys under training, writers	25
Total	[1,2] 82,447

JAPAN

Enlistments for all petty officers is for 10 years (6 years active, 4 years reserve). For other enlisted men the period is 12 years. For volunteers this period is 6 years' active service. Six years', first reserve. For conscripts this period is 4 years active, 3 years first reserve, 5 years second reserve.

(j) *Comparison of Marine Corps*

UNITED STATES

	Afloat	Ashore	Total
Officers	64	1,126	1,190
Enlisted men	2,177	15,700	17,877
Grand total	2,241	16,826	19,067

MARINE CORPS RESERVE

	Officers	Men
Retired officers	203	------
Reserves (all classes)	290	2,954
Total	493	2,954

BRITISH EMPIRE

Afloat	Ashore	Total
157	266	423
5,085	5,265	10,350
5,242	5,531	[a] 10,773

[a] In addition 15 officers on half pay, lent Dominion navies, or seconded for service with army. In addition 98 men lent to Dominion navies.

[1] Does not include 925 ratings lent to Dominion navies nor 190 Dominion ratings lent to Royal Navy.

[2] Character of enlistments in this force:

(1) Number of boys under training and boys (service)	7,380
(2) Serving first enlistment of continuous service, viz, for 12 years	57,910
(3) Serving second period of continuous service, viz, 10 years, to complete 22 for pension	21,350
(4) Special service, viz, 5 years, after which transfer to reserve	431
(5) Noncontinuous service, British, Maltese, foreigners, and miscellaneous	2,756

ROYAL MARINES

(1) Number service first enlistment of continuous service	7,639
(2) Number serving second period of continuous service	2,657
(3) Miscellaneous	54

(j) *Comparison of marine corps*—Continued

BRITISH EMPIRE—Continued

ROYAL MARINE RESERVE

	Officers	Men
Retired officers and pensioners	632	3,722
Reserves (all classes)		3,075
Total	632	6,797

NOTE.—Patrol of shore stations is carried out by a special force—royal marine police, 10 officers, 367 men; metropolitan police, 528; abroad, civilian police, 404. No regular marines are used for this duty.

JAPAN

Japan has no force corresponding to the Marine Corps of the United States and of the British Empire. The guarding of navy yards, etc., is carried out by marine police under the Minister of Marine. There were 850 marine police in 1924. No data for 1926.

(k) *Naval reserves*

[Japanese information as of July 1, 1926]

Items	United States			British Empire		
	Officers	Men	Total	Officers	Men	Total
U. S. Fleet Naval Reserves	1,063	15,598	16,661			
U. S. Merchant Marine Naval Reserves	71	1	72			
U. S. Volunteer Naval Reserves	2,507	11,092	13,599			
Retired officers and pensioners	[1] 1,535	[2] 335	1,870	[1] 7,481	[2] 18,502	25,983
Special reserve of engineer officers				148		148
Emergency officers				225		225
Royal Fleet Reserve, class A (pensioners)					6,747	6,747
Royal Fleet Reserve, class B (nonpensioners)					17,938	17,938
Royal Fleet Reserve, class C (nonpensioners—artisans)					42	42
Royal Naval Reserves				1,665	8,045	9,710
Royal Naval Volunteer Reserves				375	3,869	4,244
Royal Naval Auxiliary Sick Berth Reserves					1,275	1,275
Australia				748	7,015	7,763
Canada				92	912	1,004
New Zealand				26	258	284
South Africa				38	739	777
Total	5,176	27,026	32,202	10,798	65,342	76,140

Items	Japan			France			Italy		
	Officers	Men	Total	Officers	Men	Total	Officers	Men	Total
Other naval reserves	3,464	40,388	43,852	9,172	154,000	163,172	4,729	60,000	64,729

[1] All ages.
[2] Under 55 years of age.

(l) Commissioned and subordinate officers in accordance with rank

Corps	Admiral of fleet			Admiral			Vice admiral			Rear Admiral		
	United States	Great Britain	Japan	United States	Great Britain	Japan	United States	Great Britain	Japan	United States	Great Britain	Japan
Line	------	5	1	------	10	8	------	20	17	52	48	51
Engineer	------	------	------	------	------	------	------	1	------	------	10	------
Medical	------	------	------	------	------	------	------	1	1	3	6	3
Supply	------	------	------	------	------	------	------	------	1	3	1	4
Construction	------	------	------	------	------	------	------	------	1	2	------	3
Civil engineer	------	------	------	------	------	------	------	------	------	2	------	2
Total	------	5	1	------	10	8	------	22	20	62	65	63
Grand total	------	5	1	------	10	8	------	22	20	62	65	63

Corps	Captain			Commander			Lieutenant commander			Lieutenant		
	United States	Great Britain	Japan	United States	Great Britain	Japan	United States	Great Britain	Japan	United States	Great Britain	Japan
Line	229	241	182	395	407	335	717	934	580	1,665	1,223	878
Engineer	------	50	46	------	243	108	------	114	196	------	278	321
Medical	69	24	28	79	192	45	287	63	67	204	106	144
Pharmacy	------	------	2	------	------	1	------	------	4	------	------	9
Dental	------	1	------	------	3	------	76	18	------	58	26	------
Supply	52	21	19	42	170	45	61	109	66	388	168	142
Chaplain	15	------	------	29	------	------	17	------	------	9	------	------
Instructor	3	4	------	3	7	------	------	22	------	------	54	------
Construction	23	------	10	29	------	9	37	------	9	116	------	16
Civil engineer	13	------	2	8	------	3	36	------	3	37	------	14
Total	404	341	289	585	1,022	546	1,231	1,260	925	2,477	1,855	1,524
Grand total	404	341	289	585	1,022	546	1,231	1,260	925	2,477	1,855	1,524

Corps	Lieutenant (j. g.), sublieutenant			Ensign or mate			Midshipmen at sea			Total		
	United States	Great Britain	Japan	United States	Great Britain	Japan	United States	Great Britain	Japan	United States	Great Britain	Japan
Line	854	359	480	1,205	16	478	------	299	------	5,117	3,562	3,240
Engineer	------	62	180	------	13	200	------	------	------	------	771	1,051
Medical	148	------	71	7	------	45	------	------	------	797	392	404
Pharmacy	------	------	4	------	------	2	------	------	------	------	------	22
Dental	22	------	------	------	------	------	------	------	------	156	48	------
Supply	2	28	57	24	------	60	------	40	------	572	537	394
Chaplain	------	------	------	14	------	------	------	------	------	84	100	------
Instructor	------	------	------	------	------	------	------	------	------	6	87	------
Construction	26	------	17	------	------	------	------	------	------	233	136	65
Civil engineer	4	------	8	------	------	------	------	------	------	100	73	32
Total	1,056	449	817	1,250	29	785	------	339	------	7,065	15,706	5,208
Commissioned warrant and warrant officers	------	------	------	------	------	------	------	------	------	1,466	2,137	2,495
Grand total	1,056	449	817	1,250	29	785	------	339	------	8,531	7,843	7,703

[1] This number includes 99 commissioned officers and a total of 55 commissioned warrant and warrant officers serving in Dominion navies. It does not include 80 commissioned officers and 4 warrant officers of the Australian Navy, also 28 commissioned officers of the Canadian Navy, which are at present serving in the British Navy.

(*m*) *Dominion navies*

COMMISSIONED AND SUBORDINATE OFFICERS IN ACCORDANCE WITH RANK

Corps	Rear admiral					Captain					Commander				
	Australia	Canada	New Zealand	South Africa	India	Australia	Canada	New Zealand	South Africa	India	Australia	Canada	New Zealand	South Africa	India
Line	....	....	....	....	....	6	1	....	....	10	7	1	....	1	21
Engineer	....	....	....	....	....	....	....	....	....	1	11	1	....	....	9
Medical	....	....	....	....	....	....	....	....	....	....	4	....	....	....	....
Supply	....	....	....	....	....	....	....	....	....	....	4	....	....	....	....
Instructor	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....
Total	....	....	....	....	....	6	1	....	....	11	27	2	....	1	30
Grand total	....	....	....	....	....	6	1	....	....	11	27	2	....	1	30

Corps	Lieutenant commander					Lieutenant					Lieutenant (j. g.) sublieutenant				
	Australia	Canada	New Zealand	South Africa	India	Australia	Canada	New Zealand	South Africa	India	Australia	Canada	New Zealand	South Africa	India
Line	10	12	....	2	20	93	27	....	4	28	19	1	....	1	7
Engineer	9	4	....	....	24	19	2	....	....	18	6	2	....	1	....
Medical	6	....	....	....	....	11	....	....	....	....	....	....	....	....	....
Dental	1	....	....	....	....	5	....	....	....	....	....	....	....	....	....
Supply	4	....	....	....	....	20	1	....	....	....	2	1	....	2	....
Instructor	3	....	....	....	....	2	....	....	....	....	....	....	....	....	....
Total	43	16	....	2	44	150	30	....	4	46	37	4	....	7	7
Grand total	43	16	....	2	44	150	30	....	4	46	37	4	....	7	7

Corps	Midshipmen at sea					Total					Grand total
	Australia	Canada	New Zealand	South Africa	India	Australia	Canada	New Zealand	South Africa	India	
Line	27	2	.....	.....	2	162	44	.....	11	88	305
Engineer	5	1	.....	.....	.....	50	10	.....	1	52	113
Medical	.....	.....	.....	.....	.....	21	.....	.....	.....	.....	21
Dental	.....	.....	.....	.....	.....	6	.....	.....	.....	.....	6
Supply	5	1	.....	.....	.....	35	5	.....	2	.....	40
Chaplain	.....	.....	.....	.....	.....	9	.....	1	.....	.....	10
Instructor	.....	.....	.....	.....	.....	6	.....	.....	.....	.....	6
Construction	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	1
Total	37	4	.....	.....	2	290	57	1	14	140	502
Commissioned warrant and warrant officers	.....	.....	.....	.....	.....	101	7	..	1	11	123
Grand total	37	4	.....	.....	2	391	64	1	15	151	625

The above total excludes 99 commissioned officers and a total of 55 commissioned warrant and warrant officers of the British Navy now serving in Dominion navies, but includes 80 commissioned officers and 4 warrant officers of the Australian Navy and 28 commissioned officers of the Canadian Navy at present serving in the British Navy.

(n) Merchant fleets of chief nations, 1,000 tons and above gross tonnage

Date	Great Britain		United States		Japan	
	Number of ships	Tonnage	Number of ships	Tonnage	Number of ships	Tonnage
July 1, 1926	4,473	20,184,154	2,299	[1] 11,089,753	990	3,583,839

Date	France		Germany		Italy	
	Number of ships	Tonnage	Number of ships	Tonnage	Number of ships	Tonnage
July 1, 1926	746	3,099,803	678	2,600,347	672	3,000,855

LAID-UP SEAGOING TONNAGE OF CHIEF NATIONS, 1,000 TONS AND ABOVE GROSS TONNAGE

July 1, 1926	239	1,203,697	[2] 117 [4] 725	415,444 3,341,639	[3] 35	[3] 53,270
			[5] 842	[1] 3,757,083		
July 1, 1926	42	91,713		([6])	[7] 30	[7] 35,521

GROSS OPERATIVE TONNAGE

	4,234	18,980,457	1,457	[1] 7,332,670	955	3,530,569
	704	3,008,090		([8])	642	2,965,334

[1] Shipping on Great Lakes not included in these figures.
[2] Privately owned.
[3] Figures are of November, 1925.
[4] United States Shipping Board.
[5] Total number of vessels.
[6] No data available.
[7] Figures are of Mar. 13, 1926.
[8] No change.

SUPPLEMENTARY TABLE NO. 1

[Merchant fleets, classified according to age, 1,000 tons and above gross tonnage]

Country	Under 5 years		5 years and under 10 years		10 years and under 15 years	
	Number	Tonnage	Number	Tonnage	Number	Tonnage
Great Britain	972	4,809,156	1,177	5,681,543	688	3,479,861
United States	89	360,505	1,665	8,475,132	176	860,659
Japan	88	325,090	420	1,568,355	68	302,200
France	120	658,337	252	929,894	98	515,868
Germany	264	1,150,086	132	521,924	43	194,982
Italy	80	550,417	150	752,927	55	272,374

Country	15 years and under 20 years		20 years and under 25 years		25 years and over		Total	Total tonnage
	Number	Tonnage	Number	Tonnage	Number	Tonnage		
Great Britain	589	2,445,653	543	2,100,591	504	1,668,370	4,473	20,184,154
United States	112	468,460	82	395,453	175	529,544	2,299	11,089,753
Japan	57	267,333	105	331,230	252	789,631	990	3,583,839
France	82	358,887	88	333,200	106	303,617	746	3,099,803
Germany	47	186,832	76	243,019	116	303,504	678	2,600,347
Italy	74	356,466	88	381,700	225	686,971	672	3,000,855

SUPPLEMENTARY TABLE NO. 2

(Merchant fleets, classified as to speed, 12 knots and above, 1,000 tons and above gross tonnage)

	Great Britain	United States	Japan	France	Germany	Italy
12 knots	2,[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12½ knots	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
13 knots	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
13½ knots	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
14 knots	1,237,513	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
14½ knots	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
15 knots	[illegible]	[illegible]	[illegible]	[illegible]	.....	[illegible]
15½ knots	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
16 knots	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
16½ knots	[illegible]	[illegible]	.....	[illegible]	.....	[illegible]
17 knots	[illegible]	[illegible]	[illegible]	[illegible]	.....	[illegible]
17½ knots	[illegible]	[illegible]	.....	[illegible]	.....	[illegible]
18 to 20 knots	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Over 20 knots	[illegible]	[illegible]	[illegible]	[illegible]	.....	[illegible]
Total	9,443,543	1,669,870	421,740	1,016,364	796,012	824,063
Under 12 knots, and non-passenger vessels	11,740,611	9,439,998	2,462,074	2,064,369	1,814,337	2,176,790
Grand total	20,184,154	11,049,768	4,948,820	3,080,833	2,610,347	3,000,853

It is a well-established practice by steamship and marine insurance companies to allow 4 per cent depreciation each year in the value of merchant vessels. The normal life of a merchant vessel is considered to be 20 years.

CONFIDENTIAL

OFFICE OF NAVAL INTELLIGENCE
NAVY DEPARTMENT
Washington, D. C.

MONTHLY INFORMATION BULLETIN

VOLUME IX—NUMBER 10

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GOVERNMENT PRINTING OFFICE
WASHINGTON
1927

FOR CONVENIENCE IN ROUTING

Officer	Initials	Date received	Date forwarded
Captain			
Executive Officer			
Gunnery Officer			
Navigation Officer			
First Lieutenant			
Engineer Officer			
Asst. F. C. Officer			
Communication Officer			
Medical Officer			
Supply Officer			
First Division Officer			
Second Division Officer			
Third Division Officer			
Fourth Division Officer			
Fifth Division Officer			
Sixth Division Officer			
Marine Officer			
"V" Division Officer			
"A" Division Officer			
"B" Division Officer			
"E" Division Officer			
"M" Division Officer			
"N" Division Officer			
"R" Division Officer			
Radio Officer			

The material for the BULLETIN is largely derived from service sources and its interest and value are correspondingly dependent upon the number and character of the reports received by the Office of Naval Intelligence from our own officers. In this connection the observations of officers afloat are of great value, particularly if the reports rendered are drawn up in accordance with existing intelligence instructions.

While political and economic information is undoubtedly of much use, the collection of military information should come first in the intelligence work of cruising ships.

NOTICE

The contents of this number of the BULLETIN are based upon information received in the Office of Naval Intelligence between February 20 and March 20, inclusive.

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H. I. J. M. S. FURUTAKA

CONFIDENTIAL

O. N. I. MONTHLY INFORMATION BULLETIN

VOL. IX APRIL, 1927 No. 10

ARGENTINA

A. NAVAL

1. Target practice of the "Rivadavia."

In the "Presna" of recent date, the Minister of Marine replied to the criticism published in the "Prensa" of January 24, regarding the failure of the *Rivadavia* on target practice.

The Minister of Marine takes exception to the entire statement and in his reply indicates that he is thoroughly satisfied with the matériel and general condition of the battleships *Rivadavia* and *Moreno*. The reply is rather sharply written and the "Prensa" comments that their article of January 24 and any other articles they might publish were a matter of their own business and they would stand by them.

The secretary of the congressional committee appointed to investigate the matériel condition of the *Rivadavia* make a reply to the article published by the Minister of Marine, taking issue with him regarding certain details. It would seem that the discussion will become acrimonious and have a political tendency. The subject is most unimportant, in view of the written statement of the Minister of Marine regarding his satisfaction with the Argentine battleship and his statement that the Argentine public need not have any fear regarding the lack of efficiency or morale in the members of the Argentine naval service.

NOTE.—The article of La Prensa mentioned above, was reported on in the March BULLETIN. The February BULLETIN contained the report on the *Rivadavia's* practice.—ED.

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2. Modernization of Argentine battleships in the United States.

Within the last few days the leading Argentine dailies, the "Nación" and the "Prensa" have had favorable editorials regarding the performance of the battleship *Moreno*, which proceeded recently from Mar del Plata to Comodoro Rivadavia and return, with the President of the Republic on board.

Although both editorials were very favorable, the "Nación," which is antiadministrative, could not refrain from commenting on the

fact that great economy had resulted from the modernization accomplished in the United States, but that more economy would have resulted had the cruiser *Buenos Aires* been used instead of the battleships.

NOTE.—The *Moreno* and *Rivadavia* was modernized last summer in the United States.—ED.

---

3. *New ships for Argentine Navy.*

It is reported that the contracts for the Argentine naval units, mentioned in the February and March BULLETINS, are on the verge of being signed and that the companies whose bids have been accepted are as follows:

Company	Ship	Displacement	Number
Thornycroft	Destroyers	1,300	8
Do	Destroyer leaders	1,800	2
Italy, Orlando	Cruisers	[1] 9,800	2
Vickers-Electric Boat (joint bid)	Submarines	914–1,190	6
Vickers	Sloops		3

[1] May possibly be changed to 6,400 ton ships.

It is understood that the cruisers will be of the English *Kent* class and that the bid from the United States was approximately $1,500,000 each more than the bid from the Italian company.

The bid made for the submarines was $1,105,000 per boat, provided three were ordered and $1,065,000, provided six were ordered.

The decision regarding these new units was taken after a careful decision of a board of officers appointed by the Minister of Marine. The board made many caustic remarks and delayed somewhat in the decision awaiting the arrival of Commander Pastor, the assistant to the head of the naval mission in Europe, trusting that he would have more enlightening information on the bids and specifications called for by Rear Admiral Galindez, the head of the mission in Europe. Commander Pastor arrived without any information that the board considered available.

Two officers of the Argentine Navy, both graduates of the Submarine School, at New London, Conn., were called before the board and gave their expert opinion regarding the relative merits of various submarines in existence. Their arguments were so convincing that the board decided to adopt the Electric Boat's design and in the board's recommendation, so worded their report that, without mentioning the trade-mark, limited the acceptable bid to that of the joint Vickers-Electric Boat Co. Rear Admiral Galindez had proposed the building of the submarines in Italy at the works of the De Bernardi-Tossi Co. specifying Tossi engines.

The submarines will be an improvement over the S type and will have M–N engines. Incidentally, I have been informed that the Argentine boats will be an improvement over the Spanish C boat which is an improvement over the original S type. Spain has now on order six of these boats and it is rumored that her submarine boat program is aiming at a goal of 60 boats.

NOTE.—The new Argentine building program was outlined in detail in the BULLETIN of December last. For some time, the Government has been investigating the European construction facilities available. Sentiment in the Argentine was apparently strongly against granting any contracts to American firms because of the prevalent anti-American sentiment, our tariff, and the fact that England is Argentina's best customer. When completed, the above program will make the Argentine Navy by far the strongest in South America.—ED.

---

4. Naval forces as organized for year 1927.

Division of instruction:
- Battleship *Rivadavia.*
- Armored cruiser *Belgrano.*
- Armored cruiser *Garibaldi.*
- Dispatch boat *Azopardo.*

Division of exploration:
- Cruiser *Buenos Aires.*
- Torpedo boat destroyer *Jujuy.*
- Torpedo boat destroyer *La Plata.*

Group of mine sweepers:
- Dispatch boats *A–2*, *A–4*, *A–7*, and *A–10.*

School ships:
- Armored cruiser *Garibaldi*, machinery and seamanship.
- *Almirante Brown*, artillery.
- *Presidente Sarmiento*, recruits.
- *A–3*, training for aviations school.

Hydrographic boats:
- Transport *1° de Mayo.*
- Lighthouse tender *Mackinlay.*
- Gunboat *Patria.*

Naval base:
- Puerto Belgrano; battleship *Moreno* attached to division of instruction for training purposes.

B. AERONAUTICAL

1. New type of airplane bomb, invented by Ex-Lieutenant Garcia.

Airplane bombs in present use, for discharge from airplane, explode only on percussion of their fuse when the bomb strikes an

obstacle in the path of its flight. Generally the contact is against the ground itself. On impact the bomb penetrates simultaneously with percussion of the fuse and is followed by the explosion of the charge and the consequent fragmentation.

If the charge is of common type for bombs, the fragmentation of the bomb body takes place in pieces of more or less regularity, the large part of which are incrusted in the sides of the crater produced, and only a reduced number of fragmentations leave the crater, projected above in a sheaf of dispersion; that is, in the form of an inverted cone whose apex is at the point of impact and whose base is in the air.

Against living targets deployed this form of explosion of the common-type bomb makes it almost useless, as the fragments projected above the crater only wound those who by chance are within range.

As the effect is almost nothing against living targets, there is no object in charging such bombs with ordinary explosive; consequently they are loaded with high explosives to take advantage of the maximum effect of the explosion. In turn, while a greater effect against material, etc., is achieved with the high-explosive charge, its direct effect is still less against living targets, since the shattering fragmentation of the body of the bomb becomes such that the shell proper is pulverized, and the small fragments have such a reduced mass that their projections do not reach a considerable distance.

For the above reasons it is not possible to use with efficiency percussion bombs against living targets, their effect being reduced to use against material.

The adoption of a time fuse for bombs discharged from airplanes permits the establishing of a point in the air for the explosion of the bomb at a convenient altitude above the terrain. A type of this kind of bomb implies not only the maximum of utility in the ordinary bomb, but it also permits the maximum efficiency against living or human targets.

Up to the present time it has not been possible to successfully use shrapnel shell from an airplane nor common bombs against living targets on account of the impossibility of setting a time fuse while in the plane. Two factors enter into this—the distance from the target to be hit and the height of the plane above the target—multiple factors which have impeded the immediate application of the exactness which would be necessary.

With artillery the setting of shrapnel time fuses is simple and rapid because one has in a moment, with mathematical exactness, the distance to the target to be fired upon.

In the airplane a knowledge of the exact altitude above the target can not be ascertained with exactitude, and only after a process of corrections which require time can the height (elevation) be approximated. On the other hand, in addition to the imperfections of the barograph readings, caused by many errors not immediately controlled, it is necessary to consider the fact that the plane continues in its flight over various points of the terrain, whose heights above sea level (approximately indicated by the barograph) may be very variable. Then again, these variations, although between approximate readings, may signify differences in altitude which affect in greater or less degree and in much larger proportions the maximum limit of altitude at which it would be convenient to have the bomb explode with its greatest effect.

For the reasons expressed above, it is not possible to employ a common-type time fuse for bombs launched from airplanes.

In the model which the inventor presents all causes of errors resulting from imperfect knowledge of the altitude for discharge of bombs disappear, since the setting of the time fuse does not depend on knowing from what altitude the bombs will be discharged, this graduation of the time fuse being absolutely independent of height of discharge. The time setting of the fuse is done in the laboratory, the bombs being constructed with the fuses graduated for the time desirable, so that explosion is produced at a height of 3, 5, 20, 30 feet, whatever is desired.

The aviator does not have to preoccupy himself with the fuse, and will only have to watch the altitude from which he effects the discharge, so as to regulate his pointing and aiming apparatus. The explosion of the bomb will be produced at a height above the ground for which it was graduated and set in the laboratory. Erroneous readings of the barograph or the difference in height of each point above sea level affect in no way the altitude of the explosion.

This system of fuses will permit of the bombardment from airplanes of living targets, with the maximum efficiency obtained by use of shrapnel. The burst of a single bomb over a column in march will include a radius occupied by the greater part of a company. The effect of a bombardment by planes using this type of time-fuse bomb against trenches or warships will be considerable.

Security against premature explosions or accidental explosions in transportation of bombs is absolute, guarded against by a special arrangement.

The control and use of the bomb-launching apparatus is exactly the same as in percussion bombs in present use, since it has the same exterior structure without any additional attachments or parts whatsoever.

2. Seville-Buenos Aires air route.

The "Nación" recently contained descriptive matter regarding the proposed airships which will operate between Seville and Buenos Aires. The following is a digest of the article:

The mission to examine into the possibility of this flight was formed in 1921 and discussions took place between Commander Herrera, of Spain, and Doctor Eckener, a director of the Zeppelin Company. This visit to Buenos Aires did not have tangible results, as Commander Herrera was recalled to his military duties in Morocco and the mission simply obtained the good wishes of the Argentine Government.

Negotiations have continued in Europe for a period of six years, and, after a great deal of attention to organization and difficult pioneer work, succeeded in convincing the Spanish Government to have published a decree granting the authority for a route from Spain.

The airships proposed for this Seville-Buenos Aires line are of the rigid Zeppelin type with metal framework covered by a strong envelope. The first proposal was to make use of a ship of 180,000 cubic meters of volume, with 4,000 horsepower, of which 1,000 would be reserve and a speed of approximately 70 miles per hour.

The cost is estimated to be 15,000,000 pesos for the first and 8,000,000 for succeeding ones. The transport cargo is estimated to be 75 tons, of which 12 tons would be passengers and freight. The final project is quite different. According to the latest information, the dirigibles will have a volume of 135,000 cubic meters and 3,800 horsepower distributed in nine motors. In spite of the fact that the volume has been reduced 55,000 cubic meters, the lifting power and the speed and radius of action have been increased.

The passenger installation consists of a large dining room, music room, large cabins for one and two beds, bathrooms and other necessary cabins for the comfort of the passengers. A small independent electric plant will supply the necessary electricity for heating, ventilation, and cooking. The same power plant will provide energy for interior communication, radio outfit, and electric starters for the motors. For the purpose of security, each motor will be secured in separate independent motor rooms secured rigidly to the airship. Also certain precautionary antivibration devices will be installed, as well as means for operating the motors silently.

Precautions are taken for the well-known danger of escaping hydrogen gases. Also changes have been made in the construction which will avoid such accidents as those of the French dirigible *Dixmud* and the *Roma*, of the United States Army.

In all the Zeppelin type dirigibles, the hydrogen is contained in 10, 15 or more independent cells for the purpose of security. Each cell is carefully insulated so that it is not in contact with any metal part and the cell itself is constructed of a thin, light, but extremely resistant and impenetrable material, an exact translation of the material of which these cells are composed is " intestines of an ox."

The following are the articles of the concession signed with the Spanish Government:

In the first article of the decree the Sociedad Colón Transaérea Española is authorized to establish a line of dirigibles between Seville and Buenos Aires. Each airship will have a minimum capacity for 40 passengers and 10 tons of freight. The same article obliges the company to establish a weekly service between Seville and the Canary Islands, with dirigibles for 16 passengers and 1 ton of freight.

In the second article it is established that the concession is for 40 years, capable of being extended every 10 years.

In the third article it is stipulated that in case the Spanish Government establishes other lines in America the Colón Transaérea will have the right to a certain percentage of them.

In the fourth, fifth, sixth, seventh, eighth, ninth, and tenth, the works, already known, which must be undertaken in Seville, are explained. These must commence within three months following the approval of the airport project, and the port must be at least 3 miles away from the military aeronautic base now in Seville.

In the eleventh and twelfth articles it is agreed that the service of communication between Seville and Buenos Aires must be inaugurated within four years. The concessionary company will be under obligation to establish a regular monthly service, round trip, which will become fortnightly or weekly when postal traffic exceeds 10 tons. If the company does not make the trips with a frequency which the State will determine, the latter can make a new contract with another company, with free use of the airport in Seville.

In the thirteenth article it is established that for each successful trip which the Colón company realizes the State will pay 500,000 pesetas. The quantity paid can never exceed 6,000,000 pesetas per year. When the State has paid 30,000,000 pesetas there will be no new payments, but the lands, the installations, and the constructions of the Transaérea in Seville will become the property of the State, who will rent it to the former until the end of the 40-year concession.

In the fourteenth article it is stipulated that in case of a failure of the Seville-Buenos Aires aerial service the State will attach all the property, indemnitizing the company for the money spent and deducting the payments that were anticipated for each trip.

The fifteenth article states that the dirigibles of the Colón company must be registered in Spain.

The sixteenth article states that 30 per cent of the personnel—permanent or eventual navigator, technical or facultative—can be of nationalities other than the Spanish or Argentine during the first four years, but at the end of this term 90 per cent of the personnel mentioned must be Spanish or Argentine.

In the twentieth article it is agreed that the concessionary company is obliged to respect protection to national industry.

In the twenty-third it is stipulated that in the mail service the Transaérea Co. will have 50 per cent of the fees.

The twenty-fifth states that the Spanish Government will intervene in the constitution of filial companies of the Colón Transaérea to watch the keeping of the contract.

In the twenty-sixth article it is agreed that in case of war the State will take over the airport and the airships conforming with the disposition which the general mobilization exacts.

In the twenty-ninth article it is arranged that this concession is subject to a similar concession obtained from the Argentine Government. In any case the concession is subject to the rules which the Spanish and Argentine Governments agree to for regular service in the international trade.

NOTE.—Further notes on this project were given in the March BULLETIN. The first ship for this line is now under construction at Friedrichshaven, to be known as *LZ–127*. See "Germany" in this BULLETIN for further details of the ship.—ED.

BELGIUM

A. MISCELLANEOUS

1. General situation.

[Source: M. I. D.]

PRESENT SITUATION

Belgium appears to be still in the process of applying the lessons of the World War to her military establishment involving reorganization, rearmament to the extent of economic and financial limitations, crystalization of doctrine as affected by changes in armament and equipment, and development of an improved system of education and training which shall apply these modified doctrines to the practical and theoretical instruction of her military personnel. The entire process of this transformation is yet in a state of flux, due not so much to an inability to decide what is best suited to her situation, as to the uncertainty in which she must remain in the present

state of Europe. In addition, the present socialist government has such strong pacifist and international leanings that it has become impossible for the army to adopt any consistent program, however moderate.

FUTURE SITUATION

There is nothing in the political situation of Belgium which is likely to give rise to serious difficulties, either foreign or domestic, in the near future, though there is some feeling between Belgium and Holland over Holland's control of the Scheldt, the ownership of Dutch Limburg and Dutch Flanders, and the control by Holland of the canals from Belgium to the Rhine. Her problems of economic and financial rehabilitation continue to overshadow all other questions. The ultimate reduction of the period of active service to six months, while a purely electoral measure, must be envisaged.

There is throughout the country a keen desire for peace, but the divergence between the socialist and nationalist ideas of how to retain it is becoming more marked. There is a fear of German aggression, or rather an almost fatalistic feeling that nothing else can be expected, hopeless as it may seen. There continues, however, the feeling that the world as a whole, and England and France in particular, can not afford, for their own selfish interests, to let her suffer again.

The revival of extreme Flamingantism—or the movement for an autonomous Flanders—has done a great deal to lessen the ties uniting Belgium with France. France's backers in Belgium can no longer discount her (Belgium) as a separate political entity, nor assume that her vote can longer be cast for her by France.

NOTE.—See the March BULLETIN for a political review of Belgium.—ED.

BOLIVIA

A. MISCELLANEOUS

1. Purchase of arms.

The President has named a commission to go to London to supervise the execution of the contract recently made with Vickers for guns and ammunition.

The commission is composed of the following: Gen. Jose Pol, B., Col. Carlos Banzer, Gen. Jose C. Quiros, chief of staff.

This contract was signed in the early part of November with Major Crawford, an ex-British Army officer with headquarters in Lima, who has been visiting the various South American countries during the past two years, as representative of the London concern. The contract represents 1,800,000 pounds sterling, payable in 12 years,

and is for field guns, machine guns, rifles, and ammunition to go therewith.

President Siles recently sent the contract to Congress to be confirmed. It was immediately given favorable action by the Chamber of Deputies and is now pending before the Senate, and I am informed that it will receive immediate favorable action.

While it is uncertain how the Government is to pay for this enormous order, it is generally understood that the Bolivian Railway, a British owned and controlled concern, has agreed that it will guarantee the contract with the taxes which it annually pays the Bolivian Government. While this is regarded as not sufficient to take care of the entire contract, it is regarded as enough to justify the Vickers Co. to proceed with compliance with the contract.

NOTE.—The above is another example of the activity of English armament manufacturers in South America. Argentina and Chile are further examples.—ED.

BRAZIL

A. MISCELLANEOUS

1. Political review.

The following notes on the general political situation are extracted from a political survey of Brazil prepared by M. I. D.

FOREIGN INFLUENCE IN INTERNAL POLITICS

In general, it may be said that Brazil is free from foreign influence in her internal affairs. Brazilians have a strong national consciousness and promptly resent any suggestion of foreign interference.

BEARING OF INTERNAL POLITICS ON INTERNATIONAL SITUATION

Internal political conditions have little influence or bearing on Brazil's foreign policy. Her own problems, as already stated, are economic rather than political. She seeks markets for her considerable exportation and desires to cultivate the nations which appear to be potential customers. The United States is decidedly the best customer Brazil has for coffee and is a heavy buyer of other products.

FOREIGN POLICIES AND RELATIONS

(*a*) General aims, important policies or doctrines.

Brazil's international viewpoint is guided wholly by economic considerations. Her foreign policy is largely directed toward the development of markets for her products. She has enormous areas of

uncultivated land and desires immigration. Fundamentally, her economic aspiration is to become self-sustaining.

She has no international questions to settle, as nearly all of her boundaries are definitely marked, and she does not seek controversy with her neighbors.

She has evinced a desire for more or less complete international independence as regards other South American nations, and considers that her occupation of half the territory of the continent and her heavier population entitled her to leadership in South American affairs.

All Latin America, aside from Brazil, is of Spanish origin, language, and traditions. This, in a sense, isolates Brazil from the others and gives rise to the fear that Argentina and not Brazil may lead them.

The traditional interpretation of the Monroe doctrine in Brazil has stressed its original purpose—that outside nations should not interfere in the affairs of the young American nations. A broader interpretation and application, however, grew out of the Pan-American movement, and it became the tendency to refer to the Monroe doctrine as establishing the principle that America should not become entangled in the conflicts of Europe.

A still broader application was made at the time of Brazil's entrance into the League of Nations, which had for its purpose the application of the aims of the Monroe doctrine to the whole world. Since Brazil's recent experience with the league and her decision to withdraw from that body, most Brazilian political writers in connection with international issues are cynically disposed toward such an application and plead for a closer union of all the American countries in accordance with the original aims of Pan Americanism and the Monroe doctrine—to secure solidarity and peace among the nations of the Western Hemisphere.

There is no sympathy on the part of the Government or of the public toward a definite Pan-Latin movement or union. This is due primarily to the influence and strong hold upon the country of the Pan-American idea.

(*b*) Relations to other important powers; recent treaties.

Argentina: The keen rivalry for leadership in South America between Argentina and Brazil is the basis for a certain amount of suspicion and distrust reflected generally in Brazilian public opinion, and also in the formulation of strategic plans and policies which are largely predicated upon Argentina as a potential aggressor. There is a definite restrained rivalry between the two countries over their respective influence in Paraguay and Uruguay. Brazil regards

Argentina's claim to the whole of the River Platte as unjust to Uruguay, and while Brazil does not directly interfere or attempt to exert her influence, it is believed that she would aid either of these small Republics against undue Argentine influence. The question of relative rights to the enormous undeveloped power of the Iguassu Falls also looms up for future disagreement.

Chile: Brazil formerly was closely allied with Chile, the common ground for this understanding being opposition to Argentina, as both countries then had boundary disputes with her. These having been settled, Brazil has shown no desire for particular association with Chile and met with indifference recent advances and proposals made, particularly that of naval limitation. Brazil feels more at home in the Peruvian-Bolivian pro-American group, which naturally discourages ideas of Brazilian-Chilean cordiality.

Other South American countries: Benevolent indifference, with the desire that they shall look to Brazil for leadership rather than to Argentina.

Portugal: Sentimental attachment on account of blood, language, and traditions. But for Portuguese capacity and Portugal as a political unit, Brazil feels a profound contempt, as she does for Spain also.

France and Italy: Great admiration as centers of music, art, and literature. Brazil is fond of referring to herself as a "Latin race," and regards the accomplishments and achievements of the European Latin nations as her own.

England: Profound respect for the commercial capacity of the British and for their military and maritime power as evidenced in the Great War. The Britisher enjoys a reputation for character and integrity higher than that of the other foreigner.

The opposition of the United States to the coffee valorization plan established by Brazil and the rubber valorization plan established by the British appears to be arousing a spirit of solidarity with the British, particularly since the loan of £10,000,000 for coffee defense was successfully floated in London during the first days of January, 1926, after funds for such purpose had been refused in New York.

Other European nations: Good-natured indifference so long as they continue buying Brazilian coffee.

Japan: There is a recent tendency on the part of Brazil to encourage Japanese immigration. This is reflected in the press and in recent publications. There is a strong encouragement of Japanese immigration by the Para Government. The Federal Government itself, however, is disinclined to give very active support to plans for the importation of inordinately large numbers of any one nationality.

United States: Brazil is the outstanding nation of importance in South America traditionally friendly to the United States and

upholding our policies in general; the history of the diplomatic relations between the two countries bearing frequent witness to this sentiment of cordiality and mutual esteem. It was less than three months after the reading of President Monroe's message that the Brazilian Government proposed to the United States an offensive and defensive alliance on the basis of the Monroe doctrine, acting on the principle that it was not in accordance with justice and right that sacrifices such as those which the United States undertook to make for the other American nations should be accepted gratuitously. Again, of deep significance in this connection was the later action of the Brazilian Government in the World War in adopting the policy of the United States in declaring war on Germany.

Brazil's League of Nations policy in endeavoring to secure a permanent seat was also in line with her general aspirations in upholding the interests of America, in this case aiming at representation of the American Continent in the absence of the United States from the league.

The A. B. C. treaty: This principal pact for the preservation of peace in South America was negotiated in 1915, signed by Argentina, Chile, and Brazil and known as the A. B. C. treaty. While this treaty never became effective, never having been ratified by Argentina, it is believed it would tend to lessen disputes of a minor nature.

(*c*) General international situation.

Brazil's general international situation is satisfactory. She has enormous areas of uncultivated land and desires immigration.

At present Brazil offers a market for manufactured goods, particularly machinery of all kinds; but gradually industries within the country are being started which will supply her needs. This is true especially of small articles.

Brazil expects tremendous development during the next few years. Brazilian writers frequently quote Roosevelt's opinion that, as the nineteenth century belonged to North America, the twentieth will belong to South America.

CHINA

A. MISCELLANEOUS

1. Some strategic conceptions concerning China.

[Source: M. I. D.]

The following, prepared by Capt. T. J. Betts, Coast Artillery Corps, is considered a very excellent and thorough presentation of the strategic importance of China's great northern plain.

Strategy, in its broadest expression, is the resultant of two forces directed by two mentalities, interacting on each other and on a given environment. Of these five factors the first four are obviously the most important and are also variables. Therefore any broad strategic consideration of China, or of any other locality, is limited to a study of environment, and no sovereign generalizations, good for all time and for all situations, are to be formulated. On the other hand, the conformation of this country is such that certain general strategic concepts, based on environment, are practically inescapable.

For example, China, within her broad political boundaries, possesses a strategic unity that is unique for such an enormous area. To the east and south the country is belted in by the sea. Where the boundaries swerve from the coast there rises a mountain barrier that, practically uninterrupted, sweeps west, then north, then east again in a sprawling semicircle. Moreover, this mountain wall has on its outward side a great delaying zone of jungle, or upland, or desert, that almost hems the country in. This mountain barrier of China proper is approachable only in the area extending from the Gobi Desert to the sea and even here the facility of approach is only comparative. Still it is noteworthy that all the great overrunnings of China have had their inceptions in this area. Thus girt in on all four sides, the country enjoys a strategic unity similar to that of Italy or India, but incomparably vaster than the first named country and of much greater compactness than the second.

Considering the interior of China, the strategic dominant comes to hand at once. This is the great northern plain, watered by the river system of the Hoang Ho and comprising the greater parts of the Provinces of Chihli, Shantung, Honan, Hupeh, Anhui, and Kiangsu. This single plain is a veritable kingdom of approximately 350,000 square miles' area. It is characterized by extreme flatness of surface, numerous rivers, generally shallow and fordable, and by the abruptness with which its mountain boundaries rise from its level. Armies can debouch into it and retreat from it by a number of passages. Its strategic value has continued unchanged down the years to modern times, for its great natural features have not altered and the country's avenues of communication are the same in this day of railroads as they were at the time of the ox-drawn chariot.

It is on this plain that the military destinies of China have been decided for centuries. It was over its area that the Chinese race slowly expanded when it first made its appearance on the stage of history. The plain was the prize for which the Ch'in's strove during the long years, in which they broke the feudal system and reestablished the empire. The wars of the Three Kingdoms are practically

sited on its surface. Historians are only now realizing that the definitive defeat of the T'ai P'ing rebellion in the nineteenth century occurred when the rebels failed to overrun this area and were pushed back on Nanking.

The importance of the great plain has been obscured in the past by the uncritical acceptance of the statements of Chinese historians. Time after time the barbarians of the north have swept down and swamped the Hoang Ho delta, and as a result have controlled China stragetically. Our present-day information as to these events is almost entirely based on Chinese sources that confuse the existence of a particular dynasty with its dominance of China as a whole. An analogy is suggested to the situation of Belgium from 1914 to 1918. If, a few hundred years in the future, the world's information as to this event were to be derived from a Belgian historian, who blandly occupied himself with the day-to-day activities of King Albert in Le Havre and disregarded what was happening in Brussels, Antwerp, and Liege, we should get a picture comparable to that presented by the Chinese historians of the Wei, Ch'i, and southern Sung dynasties. There is much to be said in favor of the realism of the Russians who, impacting on China at the time when the K'itans were in possession of the great plain, called the whole country Kitai after its de facto controllers.

Considering the plain in its relation to the country as a whole, the obvious similarity to the position occupied by Flanders in relation to the west of Europe spring to mind at once. Here, too, is a broad and level surface, easy of access and transit, in itself immensely rich, and intrinsically precious to its possessors. Here is an area that invites to maneuver and battle, that is a rich prize for conquest. No wonder that this vast plain has been for centuries the cockpit of China. But the analogy does not hold good indefinitely. Flanders is small and easy of control. Its fate in the past occasionally has been decided by the shock of armies twenty and thirty thousand strong, and its domination has followed as a simple consequence of military victory. On the other hand the Hoang Ho Plain is so wide in extent that its mere administration as a military appanage requires extraordinary talents and organizing ability. It is easy to win a footing in this theater; it is hard to obtain military control over its entirety; it is most difficult to make this control definitive and permanent. And the matter of definitive military control is especially difficult at a time when the loyalties of subordinates are subject to fluctuation.

The above statements are borne out by the military history of North China since the 1911 revolution. Time after time militarists of varying abilities have been enticed out into the open plain. Those who bid modestly for a limited section of its area have been

shouldered out by the bolder and stronger leaders who could assume the initiative and deliver attacks at will over a broad semicircle of front. Two men, Yuan Shih-kai and Wu P'ei-fu, have controlled the entire area, but neither could consolidate his hold nor put absolutely trustworthy subordinates in charge of territorial subdivisions, and each in turn was defeated by attacks that debauched into the plain through one of the great avenues of approach.

Thus from the great plain can be drawn two valid strategic generalizations. The most important can not be put in positive form. To say that dominance of China proceeds from control of the Hoang Ho Delta would be to ignore the revolts and conquests that have had their genesis elsewhere and which have swept down or up to the plain as a final or secondary step to success. The most that can be affirmed is the negative statement that China as a whole can not be dominated strategically except through consolidated possession of the great plain. The second generalization is the obvious one that for dominance in the plain to be effective it must be complete and consolidated. Anything less is an invitation to invasion.

The unwieldy character of this strategic dominance brings into special relief the major avenues through which it may be approached. As noted above, the rebellions and conquests that eventually debauch into the great plain almost invariably have their genesis in the secluded hinterlands that are relatively distant from the plain and which at the same time afford room for handling large troop concentrations, have sufficient natural resources to support and finance armies, and which permit of an easy descent at the proper time on the delta of the Hoang Ho. These major avenues of approach are seven in number, symmetrically disposed to the south, west, and north. By name they are (1) the Hangchow-Shanghai area in Chekiang and Kiangsu; (2) the valley of the Kan River in Kiangsi; (3) of the Hsiang River in Hunan, all to the south. To the west lie, first, (4) the path of the Yangtze Gorges that leads into Szechwan, then (5) the famous T'ung Kuan route into Shensi. To the northwest is situated (6) the Nankow Pass region, especially sensitive because of its nearness to Peking and opening out into the Mongolian Plateau. Finally, to the north and east is situated (7) the easy, sea-level corridor that lies between the mountains and the sea at Shan Hai Kuan.

It must not be assumed that the above are the only breaks in the ramparts that surround the plain. None of the mountain country is more difficult than the Pyrenees, and it can be penetrated in many places at the will of a sufficiently resolute commander. Moreover, certain entrances to the plain, such as (8) the road from T'ai Yuan Fu in Shansi and (9) the passes around Jehol, to the east of Peking,

are practicable for fairly large military masses. As a matter of fact, however, these other avenues have been seldom used, because of the facility of approach by the entrances enumerated, and because the symmetrical disposition of the traditional means of access permits of coordination in their employment.

Considering these major avenues of approach, the Hangchow Shanghai area consists of a pocket of plain, the true Yangtze Delta, bounded on the north by the Yangtze, on the east by the sea, on the west by an intricate but militarily weak tangle of streams, lakes, and hills, and buttressed on the south by the Fukien Mountains. Because of its lack of back country and of opportunities for organization in depth, it is strategically a weak position. The scene of much warfare in the past, it has usually figured as a place of last stands when the Chinese dynasties have been swept from the great plain by northern invaders. In modern times its importance has increased with the rise of the port of Shanghai, which has given it splendid overseas connections, almost inexhaustible sinues of war, and at least, under the obtaining system of extraterritoriality, a secure harbor of refuge for defeated leaders. The area remains strategically weak, however, and since the revolution has been dominated from the great plain whenever the latter region even nominally has been consolidated.

The two southern river corridors have much in common geographically and strategically. They consist of broad valleys, running parallel north and south for a distance of about 400 miles. Their geological constitution is identical, heavily rolling limestone country with navigable, canalized rivers flowing north throughout their entire lengths. Both give on the Yangtze in the north and the broad and fertile basin of the West River in the south, in the latter case over very slight watersheds. Communication between the two valleys, except at their extremities, is difficult. They thus lend themselves readily to offensive movements north or south, especially when jointly employed with immobilizing attacks proceeding up or down both valleys simultaneously and a mass of maneuver held for commitment to the most promising line. These valleys during the Manchu dynasty were the most serious avenues of insurrection, as their populations are ethically homogenous and are comparatively free from the Tartar strain that characterizes the inhabitants of the great plain. Thus, as already noted, the T'an P'ing rebellion had its inception in Hunan and erupted from the Hsiang Valley to defeat on the fields of Shantung. Again the successful 1911 revolution broke out at Hankow, sheltered behind the Han Valley watershed, and with two lines of supply and retreat provided by the Hsiang and Kan.

The next avenue to the west is the rough and scenically magnificent route along the Yangtze and Szechwan. While as blood drenched in the past as the rest of China, this corridor has figured little as an avenue of descent on the great plain. Szechwan, beyond the Gorges, is an empire in itself, and its rulers have ordinarily more interest in conserving their empery than in territorial expansion. This situation is confirmed in modern times by the difficulty of obtaining munitions in this Province. In consequence the tide of conquest has usually set up the Gorges rather than down the river to the plain.

Historically speaking, the T'unk Kuan pass, leading from the banks of the Yellow River in Shensi, is the most ancient in China. Here it is that the Chinese as a people first emerge from the mists of legend. For centuries the capital of the country was located in this vicinity, near Hsi An, to the west, when the empire was strong and aggressive: close to Loyang, in Honan, when the dynasties were on the defensive. In historic times, even, the strategic value of the pass has waned, for with the progressive dessication of central Asia, a bulwark of arid and desolate plains has been raised to its west, making an approach to it in force over the uplands a different and serious matter. T'ung Kuan is thus rather an outward opening door to the domination of the plains north of Tibet than a passage to the invasion of the major strategic area. Its chief employment in the latter direction is in conjunction with pressure exercised at Nankow.

This Nankow area is the most interesting strategically of the group. The point of closest approach of the Mongolian plateau to the great plain, its sensitiveness is attested by the location of Peking at its mouth. The peculiar value of Nankow is that it may be used in invasion as a pivot of maneuver either in conjunction with T'ung Kuan or with the Shan Hai Kuan Passage. In practice pressure has never been exercised on all three points at once, as the front involved is so great that the forces necessary for such an envelopment would insure a break through to the plain almost at will. The Nankow area is characterized by numerous passes into the level lands, but this advantage to the offensive is to a great extent canceled by the rough and broken nature of the country between the interior defensive crests of the mountains and the Mongolian upland. Historically the Nankow Passes have usually been points of pressure, of feints and raids, with the major efforts to reach the plain developing through T'ung Kuan or Shan Hai Kuan.

In connection with Nankow attention must be given to the plateau Province of Shansi. A mountainous region, with few entrances and exits, it seems designed by nature as a stronghold and an area of isolation. It is characterized by one important strategic feature,

however. This is the route extending from the Mongolian uplands at Ta T'ung clear south, some 350 miles, to the Yellow River plain in Honan. This route is a convenient alternative to the T'ung Kuan approach to the plain in conjunction with pressure exercised at Nankow. Furthermore, the possession of Shansi by forces based to the west insures them quick and convenient interior lines of communication. The whole Province is thus of great assistance to eastward operations from the western plateaus and is a decided liability to a defense of the great plan.

Comes now Shan Hai Kuan, the royal road into the fat lands of North China. Geographically this is the junction point between the basin of the Liao River and the great plain. Here the mountains that compass China proper end abruptly, some 5 miles from the sea, leaving a broad avenue of entrance or exit, flanked to the west by several practicable passages through the mountains themselves. The chief virtues of the Shan Hai Kuan route as a path of invasion are that it is backed up by a fertile plain that can subsist the northern armies on their march and that its level expanse offers no difficulties to transit. As a consequence of the traditional easiness of this route the Chinese, whenever possible, have placed their defense lines as far in advance of the true pass as practicable. Thus the frontier fighting preceding the fall of the Ming dynasty took place for the most part on a line drawn from the mouth of the Liao River southwest to the mountains. The region of the true pass, while the broadest and easiest road into China, is still so constricted as to permit of the active use of only some twenty or thirty thousand effectives at a given time. In consequence, major efforts to force this barrier must be made in conjunction with immobilizing attacks elsewhere or with a foolishly or treacherously administered defense.

All the above has left out of consideration the water frontiers of the great plain. As a matter of historical fact no major military effort has ever been made on this area from the sea. The Japanese in their continental overrunnings have always confined themselves to the north, preferably landing in Korea. Certain other foreign expeditions, based on sea power, have landed on the plain in modern times, but their objectives invariably have been limited to the capture of Peking and the intimidation of the governmental powers there centralized. At the same time sight must not be lost of the fact that complete command of the sea offers at the present time opportunities for easy debouchment on the plain. On the coast itself the port of Tsingtao is an obvious and not exclusive instance. But the most tempting opportunity lies in the Yangtze Kiang, which, navigable by ocean vessels for 600 miles from its mouth, occupies a unique position. Armies based on sea power and entering this stream have

their points of landing and debouchment in the heart of China practically increased to infinity.

The Yangtze itself is a river of paradox. From Ichang to the sea its valley, which commercially is one of the most potent areas in the world, does not exist strategically. To the north it is differentiated from the enormous plain of the much less important Hoang Ho by a low divide that is hardly out of sight from its own banks. On the south its very size splits it up into the delta area and the valleys of the Ksiang and Kan, which have already been considered. Again, this river, practically alone among its peers, is a major strategic obstacle. It is so broad, so deep, and above all, its current is so swift that it is unbridgeable, and even unopposed crossings by large bodies of men are fraught with dangers and attended by delays. The value of the Yangtze as an uncrossable moat has diminished, of course, with modern times; it must have appeared impregnable to the nomad horsemen that used to sweep down to its edge from the north. But even to-day it is a perplexing obstacle to north-south movements, though a great thoroughfare of east-west communication, and, granted sea power, the eastern door of the great plain.

The scope of this paper precludes more than mention of the great areas of strategic isolation in China, namely, Szechwan, Yunnan, and Fukien, though each is as big, as populous, as wealthy, and as much of a prize for conquest as a European kingdom. There remains for consideration the basin of the West River, that is to say, the Provinces of Kwangtung, Kwangsi, and the southern portion of Kweichow. Wide in extent, containing some 100,000,000 people and reputed the wealthiest portion of China, this area is as though suspended from the great plain by the valleys of the Hsiang and the Kan. These twin corridors, militarily speaking, run both ways, and there is no valid reason why northward operations, based on the West River Basin, should not be conducted as descents southward from the Hoang Ho Delta. Historically this has not been the case. Northward movements have been rare and successes few. The reason is probably that the great tides of conquest have usually swept it from the north and have advanced into the West River Basin from that direction after consolidation has been effected in the great plain. The reaction to these conquests has generally taken military form in the more secluded portions of the country and, having recognized their true objective, head for the plain by the most direct route. Still, the conquest of the north by the south remains a valid concept, granted always that the control of the plain is not secure.

This concludes a general study of China as a strategic whole. It is believed that even so brief an examination throws into relief the essential strategic unity of the country, the transcendent strategic importance of the great plain, the fact that de facto occupation and

control of the country are absolutely conditional on control of the plain, and that such control, if weakly exercised, is in itself a liability rather than an asset.

DENMARK

A. NAVAL

1. Strategic considerations.

Baron Schaffalitzky, of the Danish Army, recently published an article on the position of Denmark, of which the following is an extract:

Denmark's present defensive system, which was adopted in 1922, was to a considerable extent characterized by its creation in the period which followed immediately after the World War and which has so excellently been described by Axel Rappe as being the "rear of the cyclone." The law must therefore doubtless be revised in a not too distant future now that the situation has become clearer.

Seen from a maritime point of view the navy, in pursuance to the law, was as a whole maintained within the framework which existed during the World War; but during the years subsequent to 1922, the appropriations for the renewal and maintenance of the navy have been reduced so that while the letter of the law has been observed its spirit has not. The annual appropriation to the navy for construction is little more than 2,000,000 crowns, which is absolutely insufficient for the renewal of material. Especially during the past two and one-half years of social democratic administration the fighting value of the navy has been diminished to an alarming extent, even though one can not say that it has been destroyed. Thanks to the numerous regular personnel and the permanent framework of the law, the navy would, in case of mobilization, quickly be rasied to its full fighting power.

The objects which would be intrusted to the Danish Navy in war are therefore to keep open the water passages, Great Belt, Little Belt, and the sound, and to exercise general supervision throughout the rest of the Danish territorial waters.

The attaining of these objects will require a considerable contribution from the Danish naval air service. This service may not correspond with the importance which must be attached to the air service in naval warfare, but the air service has of late displayed much energy, both in order to train the personnel and to create better material—all with a clear realization that a strong maritime air service will prove of extraordinary importance to the Danish defenses owing to its ability for quick intervention.

Provided the necessary appropriations be granted, the near future will no doubt witness work to increase the Danish torpedo and submarine material and mine service. The air service is now operating with entirely modern reconnoitering material and intends to attempt the introduction of torpedo planes. Denmark will then proceed to a much-needed renewal of the coastal defense ships if the necessary funds are granted.

Much interest, especially in Russian quarters, has been displayed in the deepening of Drogden now in progress, but this is absolutely not connected with any military project. The passage itself, despite the deepening, will be so difficult to navigate that no essential change from the former condition is

caused by the work now being done. A cooperation between the Danish and Swedish maritime forces in the Sound has in some measure been established during the territorial watch during the World War and will, as both of these States are members of the League of Nations, also prove useful in a possible conflict in the future.

B. AERONAUTICAL

1. Rohrbach Works, Copenhagen.

The plant at present employs about 100 men. They have no new work on hand, and are working on the two flying boats which were entered at Warnemuende for the sea flight competition last July and on which alterations are being made at the request of the present owners; one alteration being in changing the shape of the upper part of the floats, which is being made flat, in order to facilitate future construction.

The Rofix single-seater fighting plane which is being built to compete with a French plane for the order in Turkey, is still here. It is in the shops and a number of alterations are being made in it by Mr. Rohrbach. One is that the position of the wings, which in the original design were at an angle of 6° from the horizontal, is being changed to an angle of 1°. The manager informed me that an angle of 6° stabilized too much and interferes with stunt flying, and that an angle of 1° gives sufficient stability but at the same time permits more maneuverability for stunt flying. Mr. Rohrbach was not entirely satisfied with the stunt-flying abilities displayed during the trials and is therefore making certain changes before taking the plane to Turkey. A second Rofix plane is also being assembled to compete for this Turkish order.

They expect shortly to receive the parts for a new commercial passenger-carrying airplane which is at present under construction in Berlin for the Luft-Hansa and which will be assembled at this plant.

NOTE.—The Rofix fighter is equipped with a 460 horsepower. B. M. W. motor. Rohrbach recently completed an order of 12 bombing planes for Japan and 2 for Turkey.—ED.

FRANCE

A. NAVAL

1. French building program.

At a recent meeting of the French General Staff it was decided to substitute three destroyer leaders (2,780 tons) in lieu of the four torpedo boats (1,500 tons) authorized to be laid down in 1926. This, therefore, makes six destroyer leaders in the 1926 program.

It was stated that the recent cruises in the Baltic showed the superiority of leaders over torpedo boats.

The Minister of Marine is about to present the 1927 program to the Chamber for debate. The prospective program for 1927 is as follows:

Light cruiser, 10,000 tons	1
Destroyer leaders	3
Torpedo boats	4
Submarines, 1,600 tons	5
Coastal submarines, 600 tons	4
Mine layer, 800 tons (submarine)	1

The French are away behind in the actual carrying out of their building program. The keels of the torpedo boats of the *Bison* class (1925 program) have not to date been laid down.

NOTE.—The submarine building activities of France, Italy, and Spain are among the most noteworthy naval construction efforts in the world to-day. The submarines of the former are especially dreaded by England, who replies with cruisers. This is the crux of the difficulty of any European disarmament project.—ED.

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2. Foreign cruises.

Another foreign cruise of a division of the French fleet commenced February 28.

The 8,000-ton light cruiser *Duguay Trouin*, flagship, will fly the flag of Rear Admiral Bonis.

The division is composed as follows:

Duguay Trouin, light cruiser.
Chacal, destroyer leader.
Tigre, destroyer leader.
Tempete, destroyer.
Simoun, destroyer.
Requin, submarine.
Souffleur, submarine.

The following ports will be visited during the cruise: Phalère, Salonique, Constantza, Galatz, Constantinople, Smyrne, Alexandrette, Beyrouth, Alexandria, Bizerte, Alger.

The duration of the cruise will be about three months.

In connection with the cruise the following quotation is given from the Figaro:

This cruise is of considerable importance, with a view to increasing voluntary enlistments and reenlistments. The cruise will undoubtedly be useful in spreading French influence in the Orient. Such a cruise is the best proof of the endurance of our new units and the activity of our navy.

NOTE.—Of late the French have made a point of flag-showing cruises, always sending their best and largest types of vessels on such missions.—ED.

3. Recruiting situation.

Monsieur le Bail, député from Finistere, and president of the naval committee, made the following statements in a recent speech at Brest:

We must have 63 per cent of voluntary enlistments and reenlistments. That is, of the maximum allowed strength (50,000 men), 34,000 to 35,000 should be sailors by career, a proportion indispensable, when we consider the specialists required in modern ships.

We must therefore seek the means to encourage enlistments and reenlistments.

First, it is necessary to increase the pay. A petty officer, third class, with three to five years' service makes 160 to 180 francs a month. This is not sufficient. After five years' service he still earns less than he would in civil life or in the merchant marine. Just think, under normal conditions a deep sea fisherman earns 1,000 francs a month; a coast fisherman 800 to 850 a month; a merchant-marine sailor 700 to 800 a month.

It might be said that promotion is the remedy, a very difficult problem in an already overcrowded petty officer corps. In the rating of gunner's mate, for example, promotion to petty officer, second class, requires over 13 years' service. It will be necessary to reduce the excess petty officer ratings by a graded retirement law permitting the retirement of a large number of excess petty officers.

I also consider a change in the system of payment of the reenlistment bonus is necessary to obtain better results; the bonus should be paid annually, after each year of service, and not at the end of a term, as at present.

NOTE.—Further details of the personnel difficulties of the French Navy were given in the March BULLETIN.—ED.

B. AERONAUTICAL

1. Submarine seaplane.

The Press announces that France is experimenting with twin-seater planes for submarines. A seaplane recently landed in the Seine River at Suresne. It had folding wings, which enabled it to enter into a tube on board the submarine, and two seats (one for the pilot and one for the observer). This seaplane will leave in the near future for Brest.

NOTE.—The French experiments in this matter are following those conducted on our *S–1*.—ED.

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2. Bleriot Aviation Works.

The Bleriot aviation factory at Suresnes has comparatively little work at the present time, and although the buildings can accommodate 6,000 workmen, there are only 500 employed.

No French Army or Navy orders are in hand. The chief work going on is an order for Rumania of 100 Spad 61 single-seater pursuit airplanes with the 450-horsepower Lorraine Dietrich engine.

The factory is completing an order of 300 pursuit airplanes for Poland, of which 250 are of type 61, the remaining 50 of type 51

(Gnome-Rhone Jupiter engine). It will be remembered that the wing construction of the type 61 is entirely of wood, whereas the type 51 has duralumin wings.

An interesting point in the S–61 is the location of the two Darne machine guns, which are housed inside the upper wing with their muzzles projecting forward of it above the leading edge. These guns, as well as the two Vickers guns firing through the propeller, are all operated by one universally jointed control attached to the lever.

Another special point of design is the flippers forming the rearward prolongation of the elevator. These flippers can be set on the ground only at various angles to the elevator, thus, in effect, changing the camber of the elevator.

Eight S–56 Berlines are being built for the C. I. D. N. A. (Compagnie Internationale de Navigation Aerienne) and two for the Air Union. These are practically identical with the classic S–56, except that they have a new type of axleless landing gear. Unlike the Jupiter engine in the S–51, the engine of the S–56 has an exhaust ring carrying the gases to the bottom.

The S–56 has duralumin spars and wooden ribs. The fuselage, of course, is of the well-known monocoque construction used in the old types of Bleriot airplanes designed by Herbemont.

The rubber shock absorbers are contained within the fairings of the lateral landing-gear struts. These airplanes are equipped with Jupiter engines, and, in addition to the crew of two, carry only four passengers, representing a rather high expenditure of horsepower per passenger. Of course, the speed of these airplanes is very much better than was the case with the former models having the 260-horsepower Salmson engines, and the Jupiters are not run all out when cruising.

An experimental order for three S–60 two-seater fighters is being completed for the French Government. This airplane is a slightly enlarged edition of the S–61, having the same engine. The gunner's cockpit, immediately behind that of the pilot, has a Scarff type ring mount, thus being a great improvement on the old *Spad 20*, in which the gunner had to rely on a simple post support for the gun.

The S–60 is designed to fulfill the same requirements as the Koolhoven FK–31, manufactured in France by de Monge.

The Bleriot Co. is building two new large commercial airplanes for the Air Union, to be used on the Paris-London service. These are known as the Bleriot 165, and follow the same general lines as the Bleriot 115, 135, and 155 commercial airplanes.

Instead, however, of having four engines, the type 165 has two Jupiter Gnome-Rhones arranged laterally just above the engine lower wing in the centers of the inboard bays. Behind each engine is a nacelle containing the fuel tanks.

The starter is a French-made Bristol, placed in a recess on the right-hand side of the pilot's compartment. Dual control is fitted and there is a navigating compartment in the nose. In addition to the crew of three, the Bleriot 165 is designed to carry 16 passengers, several of whom, however, have to sit on tip-up seats.

The Bleriot Co. has completed and is now flight testing a combat monoplane, having a crew of four, and designed for the same program as the Schneider 10 all-metal airplane. The first model, known as type 117–M, had two 400-horsepower Lorraine-Dietrich engines, but the latest airplane (type 127–M) has Hispano Suiza 450-horsepower W type engines. Each engine nacelle is continued aft, behind the leading edge, where it accommodates a machine gun. The axis of the rotation of the ring mount, carrying twin machine guns, is raised sufficiently high to enable the guns to fire either above or below the wing, when facing forward; care, of course, being taken not to fire through the propeller.

As there is in the nose of the central fuselage a third gunner, having twin machine guns, it will be seen that this airplane has remarkably complete protection.

GERMANY

A. NAVAL

1. Launching of new cruiser at Wilhelmshaven.

At the end of March a new 6,000-ton German cruiser will be launched at the dockyard at Wilhelmshaven. It is built on entirely new principles and will be appreciably longer and narrower than the *Emden*. The cruiser will probably be named the *Koenigsberg*.

NOTE.—This is the second in a series of five 6,000-ton light cruisers. The current German building program also calls for six 800-ton destroyers, all of which have been launched.—ED.

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2. Reconditioning of the ex-German cruiser "Goeben."

[Source: German press]

The much-disputed demand of the Turkish Government for the reconditioning of the former German warship *Goeben* has now been settled after years of negotiations, but not, unfortunately, to the advantage of German industry. The well-known German yards—Flender Aktiengesellschaft, of Luebeck, and Blohm & Voss, of Hamburg—have achieved a leading position in Turkey under international

competition. The very closely calculated bid of the Flender company, which all along has had the best prospects of acceptance by Turkey, amounted to 12,000,000 marks. This price also corresponded approximately with that made by Blohm & Voss. The order has now gone definitely to the French firm, St. Nazaire, which only asked a total price of 3,000,000 marks. It can only be assumed that political factors played a leading part in this decision, as political influences are bending every effort to destroy the prestige of German industry in Turkey.

NOTE.—See the March BULLETIN for further details of the renovation of the *Yavouz (ex-Goeben)*.—ED.

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3. German naval estimates.

Naval estimates for 1927–28 amount to close to $55,000,000, an increase of about $6,000,000 over last year. A large portion of this goes to new construction, while $500,000 is devoted to Diesel engine experimentation. The fuel bill is large, showing an active fleet condition. Appropriations for officer personnel are also comparatively large as there is one commissioned or warrant officer for every two enlisted men. The total estimates are almost half of those of 1914.

B. AERONAUTICAL

1. The Junkers Works, Dessau.

The Junkers Flugzeugwerke at Dessau has for years been one of the strong German manufacturers of airplanes. Before and during the war the profits of this company were assured by liberal government contract for war purposes at profitable prices. The yearly business climbed up to as high as $13,000,000 in 1921.

Export business during the inflation was not profitable to the company because of the long payment terms required. There was naturally no domestic business to be had during the inflation years.

The idea that a nation must be foremost in the use of airplanes, even at the expense of the general taxpayer, is very prevalent in Europe—and not less so, in Germany. For that reason the German Government in 1921 began to loan money to Junkers. Junkers states that the Government required them to engage in certain work whereby they needed certain credits and that the German Government forced them to take certain contracts which interfered with the normal operation of their business.

The German Government extended these credits, taking as security the control of the airship operating company (Junker's Luftverkehr

A. G.), which was a subsidiary of the present company. Lately the Junkers company has been unable to meet the service on its obligations and was practically insolvent.

In order to straighten out the tangle, the German Government and the Junkerswerke have recently come to an agreement whereby the German Government takes the airplane operating company entirely away from Junkers and turns it over to the newly established independent "Lufthansa," which now operates the entire German air traffic.

Furthermore, Junkers obligations have been settled, with the agreement that they will pay back 10 to 15 per cent of the total credits extended by the German Government in the form of future supplies of airplanes. At the same time the German Government withdraws from the Junkers company as a stockholder, renounces its participation in three-quarters of the shares of the company which it held as security for the credits granted, and accepts cancellation of all previous credits extended up to January 1, 1927.

Boiled down, the entire proceeding amounts to a German Government subsidy to a particular airplane factory in the form of (*a*) first loaning them money, (*b*) later canceling the obligation on a basis extremely favorable to the company.

A previous administration is blamed for the Government's errors, and the later administration rectified the "mistakes" of their predecessors generously when time for repayment comes.

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2. Construction of new Zeppelin started.

The Zeppelin Works at Friedrichshafen, after spending several months in manufacturing standard parts for a new airship, has now begun the actual mounting of the aluminum alloy framework of the ship which is to be known as the *LZ–127*.

So far the construction work is half experimental to test the plans for adapting the form of the ship to the new idea of using gas instead of gasoline or benzene for fuel. The frame is to be built so as to provide gas cells in the upper portion for the usual lifting or carrying gas and in the lower portion space for the fuel gas for driving the motors. The Zeppelin engineers have fully decided that the new ship can be driven advantageously with gas instead of the liquid fuel formerly used. A gas approximating the specific gravity of air will be used. As it is consumed its place in the ship will be taken by air, so that the burden carried by the lifting gas will remain practically stable instead of decreasing rapidly as when liquid fuel is used. The engineers believe the freight and passenger carrying

capacity of the new ship will be considerably increased and that the necessity of letting off valuable gas to lose altitude can be obviated.

TRANS-ATLANTIC SERVICE PROJECTED

It is reported that the ship will probably be completed by late summer of this year, experimental trips over Europe will be made during the autumn, and that the ship will begin operating a trans-Atlantic service between Seville, Spain, and Buenos Aires, Argentina, in the spring of 1928, possibly after a flight around the world under command of Dr. Hugo Eckener, who piloted the *Los Angeles* on its trans-Atlantic flight in 1924.

The *LZ–127* was originally proposed for a polar exploration, and the German people subscribed two and a quarter million marks toward its construction with the idea that a trip to the North Pole would be made. To-day the prospect that it will be used for such a purpose is slight. Doctor Eckener long ago had a serious disagreement with the German section of the International Society for Exploration of the Arctic, with the result that he stated that he would not agree to the conditions proposed by the society and that if necessary the Zeppelin works could build the ship and carry out its own exploring without cooperating with the society. However, polar exploration was advanced as the reason for building the ship at a time when the consent of the allied governments was required. The provisions in the Versailles treaty, which would have prevented the building of another ship at Friedrichshafen, have since been set aside, and the Zeppelin works is free to proceed with construction of the *LZ–127* for whatever peaceful uses it wishes.

EXPERIMENTS WITH GAS SUCCESSFUL

The experiments of the Zeppelin works and the Maybach Motor Co. in the use of gas as a fuel instead of gasoline have advanced so far that the question now at issue is only which of several gases is most practicable. On this point the Zeppelin concern states in a letter as follows:

> After we had ascertained that most of the gases which could be considered at all operated efficiently in the motor, it became our undertaking to find out which of these gases would prove most economical, since the gas to be used must be easily obtainable at the airship stations involved. The termination of this investigation has not yet been reached. So far airships have never been operated with such a gas. Our experiments have shown, however, that the motors run at least as well with gas as with gasoline.

NOTE.—See this BULLETIN, under "Argentina," for details of the trans-Atlantic service.—ED.

GREAT BRITAIN

A. NAVAL

1. British cruiser construction, 1926–27 program.

The two class A 10,000-ton cruisers of the 1926–27 program are to be named the *Dorsetshire* and *Norfolk*. The naming of these vessels follows the practice of selecting names of counties. The vessels will be built at the Portsmouth Dockyard and at the works of Fairfield Shipbuilding & Engineering Co. (Ltd.), respectively.

The one class B cruiser of the 1926–27 program will be named the *York* and will be built by contract at the works of the Palmers Shipbuilding & Iron Co. (Ltd.). The naming of this vessel follows the practice of selecting names of towns, and it is understood that the first names selected for this class will be the names of important cathedral towns.

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2. New ship details.

In a recent issue of a Parliamentary Paper details are revealed for the first time officially of the horsepower of the *Nelson* and *Rodney*. These ships will develop 45,000 horsepower, or 5,000 more than the last British battleships—the *Royal Sovereign* class. Their designed speed will be 23 knots and they will be the only British battleships fitted with geared turbines. They will have an oil-fuel capacity of 4,000 tons, 600 tons larger than the *Queen Elizabeth*, and with bunkers full they will displace nearly 40,000 tons. They will mount six 4.7 antiaircraft guns. The cruisers of the *Kent* class (10,000 tons) will develop 80,000 horsepower and have a designed speed of 31½ knots, their armament consisting of eight 8-inch and four 4-inch antiaircraft guns and eight torpedo tubes (probably 23-inch). They will have a total oil-fuel capacity of 3,400 tons, which is 1,250 tons greater than that of the largest British cruisers now in service.

The *Nelson and Rodney* will complete this spring and summer. Great Britain now has 11 cruisers of the *Kent* class under construction.—Ed.

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3. Trial runs of "Ambuscade."

The Admiralty stated yesterday that His Majesty's ship *Ambuscade*, the new destroyer built by Messrs. Yarrow on the Clyde, has completed her full power trial for six hours, averaging 37 knots.

Note.—There are two boats of this class just completed. They displace 1,250 tons and mount four 4.7-inch guns and six 21-inch torpedo tubes.—Ed.

4. Foreign naval contracts.

[Source: English press]

It is understood that all the shipbuilding firms, British and continental, which were invited to bid for the Chilean destroyer contract have now submitted their tenders to the Chilean naval commission in London, which will forward them to Valpariso for the final decision. The proposal embraces six vessels, reported to be of a large and powerful type. The conditions specified were exceptionally onerous with regard to steaming and endurance capacity, but in view of the very large number of firms competing for the work there is no doubt that the prices quoted will be extraordinarily moderate. There is every hope that British industry will secure at least a portion of this contract, thanks to the high reputation enjoyed by several of our leading firms as builders of fast and seaworthy destroyers. It will be recalled that both the Dutch and Rumanian Governments recently selected British plans for their new destroyers in preference to those offered by continental designers. Moreover, the finest destroyers now serving in the Chilean fleet, and indeed practically all the modern units of their fleet, are of British design and construction. Credits are also to be opened in Chile for new cruisers and submarines, tenders for which are soon to be invited. The Argentine Government has been authorized to spend a large sum on renovating the national fleet and is now preparing plans for new ships, including cruisers of the 10,000-ton class, destroyers, and submarines. It is stated that American builders are confident of securing the lion's share of this work, but we understand that British and continental firms will also be asked to tender for the vessels. It is possible, therefore, that British shipyards during the present year may receive some valuable naval contracts from abroad.

NOTE.—See "Argentina," in this BULLETIN, for details of Argentine naval project. Details of the Chilean naval expansion program were given in the February and March BULLETINS. It is significant that, as far as is known, the United States was not asked to bid on the six destroyers.—ED.

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5. Repair-ship policy.

[Source: English press]

We can only assume the policy of the Admiralty in this matter from events as they happen, since no sort of enlightenment is vouchsafed by Whitehall these days. But it seems reasonable to conclude that the principle of making the fleet self-maintaining is to be carried a step further. The repair ship *Assistance* has just been recommissioned for a further spell of service with the Mediterranean

fleet. This, of course, is in the normal order of things. More significant, however, in this direction is the news that the Admiralty have just placed an order with Vickers (Ltd.) for the construction of a new repair ship. It is safe to say that this vessel will represent the "last word" in the way of equipment, and that therefore her complement will be called upon to utilize her resources to the utmost. As a principle, the plan of self-maintenance to the utmost possible limits is perfectly sound.

In bygone days ships came into dockyard hands for repairs which their mechanical staffs should have been quite capable of executing. But any further development in the way of "floating workshops" does not auger well for the Royal Dockyards. Malta is not adequate to cope with all the work of the Mediterranean fleet, and the consequence is that a certain proportion of the ships on that station come home for refit or repairs. If, as is believed, the Admiralty propose to make the Mediterranean fleet self-maintaining in all respects short of big refits, it is clear that there will be so much the less for the home dockyards to do.

NOTE.—The new repair ship will be named the *Resource*. Its construction was authorized in the 1926 program. The British are apparently taking a leaf out of our book on the matter of fleet maintenance, having been forced to do this because of their postwar strategy, which takes the mass of the fleet away from the North Sea.—ED.

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6. H. M. S. "President," the Royal Naval Volunteer Reserve, London division.

A visit recently was made to H. M. S. *President*, the drill ship of the London Division of the Royal Naval Volunteer Reserve. The occasion was one of their routine drill nights, and a fair attendance of officers and men was present.

H. M. S. *President*, now decked over, is moored alongside the Thames embankment and is remarkably well equipped for training purposes. There are mounted on her gun deck a modern 6-inch gun, two 4-inch guns, and several smaller guns, which are connected up with a model transmitting station, which, in turn, is in communication with a model spotting top and a directorscope. There is installed the follow-the-pointer system on the three larger guns, and complete voice-tube communication is also provided.

There is a radio room aboard and good facilities for training of radio men with buzzer circuits. There is a torpedo workshop and several torpedoes available for instructional purposes. Also, there is an ordnance lecture room with various fuzes, primers, etc. Loading machines are also installed in the ship.

There is a compartment specially equipped for instruction in marline-spike seamanship and a model showing the ground tackle and gear for its handling on a modern ship.

The drills observed consisted of gun-crews drill at the guns, a few squads of the more recent recruits receiving instruction in the manual of arms, and various groups receiving instruction or undergoing practice in seamanship, signaling, radio, ordnance, torpedoes, and electricity.

Though the enlisted men are supplied on enrollment with quite a complete outfit of uniform, they are not required to shift into uniform for drills during the winter season, but wear uniform in the better weather when boating under oars and sails is a large part of their training.

At present there are about 850 enlisted ratings in the London division, the maximum complement for which pay can be provided being 1,000. There are at present over 30 Royal Naval Volunteer Reserve officers of the executive branch attached to the London Division, this being practically full strength, in addition to a very liberal allowance of chaplains, medical officers, and paymasters. There are also about an equal number of "List 2 officers" carried as attached to H. M. S. *President*, who are understood to be in a less active status. Capt. Henry Douglas King, Royal Naval Volunteer Reserve, who is also financial secretary to the War Office at this time, commands the London Division and takes a great interest in it. He had a most interesting and varied war experience, concluding with service in the Admiralty in the convoy section, where he was thrown into close contact with some of our officers. About 15 other officers were also present and were all equally keen and enthusiastic about their work. The Royal Naval Volunteer Reserve is very proud of its war service, and a number of prominent and influential personages in England are deeply interested in its welfare.

There are eight divisions of the Royal Naval Volunteer Reserve in the United Kingdom, the others being the Clyde Division at Glasgow, the East Scottish Division at Leith, the Bristol Division, the Mersey Division at Liverpool, the Sussex Division at Hove, the Tyne Division at Newcastle-on-Tyne, and the Ulster Division at Belfast. The majority of these divisions are furnished with ships. There is also a South African division which comprises the former Cape Naval Volunteers and the former Natal Naval Volunteer Reserve.

Enrollment in the Royal Naval Volunteer Reserve is for a period of four years, which can be extended. In the London division there is no definite recruiting system for the organization, reliance rather being placed on the tendency of the members favorably to influence their friends to join. It was gathered that there is no very considerable interest on the part of young men in civil life to join up, but

the limited available space on the *President* does not encourage efforts greatly to enlarge the number enrolled at present. Though what corresponds to our retainer pay is small, only about $12 in some cases; full pay of their rating is granted during the two weeks active duty afloat annually. This training is conducted on board ships of the Atlantic Fleet, small groups from the divisions being assigned to various ships. The division has no cruising ship of its own, and the sentiment seemed to be favorable to the existing plan, particularly when it is possible to send their men afloat during cruises of the fleet when ports of interest are visited. Interest in the work of the division varies greatly among the men, some coming to drills three or four times a week, while others attend only the minimum number which is a requisite to their receipt of pay. Some indeed do not even meet that requirement and are dropped from the rolls in consequence.

The Royal Naval Volunteer Reserve had a large annual dinner recently which was a great success and is said to have stimulated more than usual interest in the organization as a whole throughout the country.

As a matter of interest, H. M. S. *President* is the ship to which all officers serving in the Admiralty are nominally attached, this being in accordance with the British custom that every officer must be borne on the rolls of some vessel no matter what his duty.

B. AERONAUTICAL

1. All-metal construction.

[Source: British press]

There is no more interesting field of technical development in British aircraft construction to-day than that associated with the gradual change over from a timber to an all-metal structure, and these peace-time years are being fully employed with a careful exploration of all the various methods of building up aircraft members from metal.

Unlike a number of foreign constructors who, in order to secure a speedy return, have produced metal assemblies more or less peculiar to a particular type, the whole trend of British policy is to carry on with timber until some system is evolved which is not merely applicable to the design of one airplane but provides a basic design adaptable to aircraft of any size and in all circumstances. Taking a long view, this is obviously the right policy, for it is useless to have a system of construction thought out and reduced to workshop practice for one particular type when the whole science of aeronautics is in such a fluid state that a machine is in danger of being

completely out of date within a few years through some further development either in design or engine power available. The plant required for all-metal construction is necessarily more expensive than that needed for timber construction when small quantities are required; therefore it is undesirable to incur a large expenditure on capital equipment until there is reasonable ground for assuming that the plant laid down will be equal to turning out metal shapes capable of filling most of the needs of an expanding and changing airplane unit.

The greater ease of working in timber and the fact that an expensive plant is not required led the British constructor, ever aiming at aircraft with new features and higher performance, to remain faithful to the composite wood and metal construction, while concurrently steadily pursuing in his experimental shop the evolution of a system of metal construction into which at any moment the whole of his technical progress in wooden aircraft can be diverted in case of necessity.

GRADUAL TRANSITION

It is for this reason that Great Britain has not made a great show of its all-metal aircraft, and not because the British aircraft constructor is behind the rest of the world in technique. In fact, there is little doubt that Great Britain has made more progress in the basic requirements of all-metal aircraft than any other nation, though she has not translated that knowledge and experience, so far, into a complete abolition of timber in favor of metal. It is, of course, recognized that the change must be made, and it is only necessary to recall the shortage of first-class aircraft timber toward the end of the war to make it clear that, in the future, metal alone will provide the quantity of raw material which may suddenly be called for in any large-scale production.

Timber has, however, shown unmistakably its fitness for use in aircraft in every part of the world, and it may therefore be taken for granted that the change over from timber to metal in the case of British construction will be a gradual affair, starting, as it has already started, with the high-performance military scouts, extending to the fast two-seater class, and ultimately including the biggest aircraft made. Civil aircraft, in which different considerations from those applying to military aircraft are predominant, will be the last to forsake wood, mainly because the price factor is all important in the development of civil and private aviation, though here again the fuselages of the latest types of air transport craft are entirely of metal.

Seagoing aircraft are in a category of their own, for it has always been recognized that here peculiar difficulties arise in regard to main-

tenance. The difficult problem arising from the action of sea water on metal has complicated and is still hindering development, but there is no doubt that the all-metal flying boat has not only arrived but will completely oust the wooden boat in the near future, although land aircraft may still embody timber construction.

For the moment the point to be emphasized is that the governing factor in the choice of timber or metal in British aircraft is not the state of the technique but finance, and every British constructor, if his customer desires a particular design translated from wood into metal and is prepared to pay the extra cost involved, will be ready to supply an all-metal aircraft. The British ministry have decided in principle that all military aircraft must be of metal, but they recognize that on a relatively small production the cost per machine must be higher, and that for financial reasons the transition should be easy and not sudden. As Mr. J. D. North, the chief designer of Boulton & Paul (Ltd.), of Norwich, who has done much pioneer work in metal construction, very rightly points out, there is a very close relation in metal construction to quantity ordered; and, generally speaking, it may be said that for small production timber is more economical than metal, but for large-scale manufacture a sound and flexible all-metal technique will produce cheaper aircraft and in less time. Every British designer to-day is working on this aspect of the problem, and the interest of the present development is the extent to which different designers are exploring varying constructional arrangements of metal in the search for the most economical and simplest method of assembly.

ALL-STEEL AIRCRAFT

Development is proceeding along two sharply defined lines, one school pinning its faith to the use of high-tensile steels, available in quantity in this country, and the other school seeking to find the ideal form in the use of duralumin and other light alloys. The supporters of the first school are on strong ground in that steel is a home production of Great Britain and one in which an immense fund of experience exists, but owing to the greater density of steel they have had a harder problem to solve in securing a light enough structure without the use of sections, the thinness of which makes for instability.

The other school points to the greater difficulties in working on high-tensile steels, and contrasts it with the ease with which duralumin can be worked and the fact that, as thicker sections of the lighter material can be used, greater stability is automatically secured, while for flat surfaces of any size duralumin plate is usable

when a steel plate would be out of the question on account of weight or the thin gauge necessitated to reduce weight.

Actually the position may not unfairly be stated in terms of the aircraft under consideration. For land machines in which no large surface capable of resisting severe shocks is required, an all-steel construction with a fabric covering for the main supporting surfaces is probably preferable, and it is also one which appeals to British sentiment and practice. But for the seaplane and flying boat, where large hull or float surfaces are involved which must take severe water shocks, and where the whole machine is subject to operating conditions of weather and water, the duralumin exponents claim a decided superiority owing to the fact that much thicker sections and plates can be used without increase of structure weight.

Both methods of construction in their respective spheres can, in fact, claim to produce aircraft lighter than corresponding machines of timber, and the admitted advantage derived from the absence of deterioration of properly protected metal is a factor of supreme importance, both in civil and military aviation. Steel wings and spares, as well as duralumin parts, can be put in store for years with the certainty that they will be as efficient as when first made; the conditions of storage are simpler, and, obviously, the parts are not subject to the alteration in shape from which timber suffers in varying climatic conditions if not stored under skilled direction.

PIONEERS IN DURALUMIN

Probably the most immediate advantage to be gained from all-metal construction is in flying boats, where the water soakage in a wooden hull is a serious problem, and here the leading exponents of duralumin construction are Short Bros., of Rochester, who have done invaluable pioneer work for Great Britain in steadily pursuing the exploration of the use of duralumin. They alone have carried the constructional application of this light alloy to a point where they have already produced one large flying boat which is entirely all metal with the exception of the actual wing coverings, and they have now under construction two three-engined flying boats for use on the Empire airways in the East.

As a result of years of quiet and persistent research, largely inspired by Mr. Oswald Short, a form of monocoque construction has been evolved for the hull which utilizes the material to its utmost advantage, while a form of duralumin spar has been built up, which equally has a number of distinctive points, both in the use made of duralumin and the factory methods of production. Other firms, such as the Supermarine Aviation Co., of Southampton, and the

Blackburn Co., of Leeds and Brough, are tackling the same problem by the use of steel, basing their work on their unique experience in boat construction to produce the same hull efficiency in metal instead of wood shapes. Both the metals have, of course, in varying degrees, to withstand the corroding action of sea water, and the solution of this problem is of extreme importance.

Equally valuable work in another direction has been carried out by Major Green, of the Armstrong Whitworth Aircraft (Ltd.), of Coventry, who, carrying on the method of building up spars from corrugated steel strip first developed by Major Wylie during the war, has achieved complete success in reducing every part of an aircraft structure to production in metal. In fact, the standard single-seater fighter of this firm, the Siskin, is now entirely an all-metal job, with the exception again of the fabric covering, and Armstrong Whitworth Aircraft (Ltd.) have the distinction of being the only firm supplying all-steel aircraft in quantity to the Royal Air Force to-day. Their success is a story of intensive study of a difficult constructional problem, with the fixed requirement that the final form of construction must be such that the building of the spars, ribs, and fuselage members is capable of rapid expansion in war and that the method of assembly permits rapid repairs in the field. An examination of their constructional system shows that this ideal has been achieved to a high degree.

Reference can not be made to all the other firms who have branched out on individual lines, as in some cases it is uncertain whether their particular methods are ripe for publicity, but mention may be made of the ingenious and distinctive system which the Hawker Engineering Co. have applied successfully to the Heron type of fighter and which is being incorporated in other more striking aircraft. The fuselage is mainly made up of a tube with the rather clumsy name of "square-cum-round" section; that is, it is a square section tube with rounded corners. The shape lends itself most conveniently to assembly for the body and for the wing spars is being developed into what may be called a "figure of 8" section tube. This is a plain production job and one which can be worked upon in case of a national emergency by labor with no previous acquaintance with aircraft construction. It is acknowledged that there are limitations to the size of wing in which such a spar can be used, but it is applicable to a very big range of fast military aircraft of the scout type. The Bristol Co. and the Gloster Co. have each worked out a built-up spar of steel strip, and here again progress, proceeding along different lines, is leading to a wide choice of factory methods in all-metal construction.

The construction of the wing in metal is, in reality, the crux of the whole metal problem, for, as is well known, British aircraft

to-day, even though nominally still of timber, are very largely of metal in regard to the body work. Some makers are practically using metal tube throughout the fuselage, while others use it for the front half of the body and back to the rear seat, merely using a timber form for the last part of the fuselage. The size of the machine does not render the use of metal more difficult in the fuselage area, but, when consideration is given to wing forms, then it is not so clear that any one form of all-metal construction has such undoubted advantages over any other as to compel universal acceptance. The present trend of progress may very well result in certain main forms of assembly falling into well-defined categories related to the size of wings required, the extent of the manufacturing resources of the steel strip, tube, or duralumin in war time, and the degree to which dilution of labor can be used in manufacture, both of the raw material and of the aircraft components.

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2. *British dirigibles R–100 and R–101.*

The *R–101*, under construction by the Air Ministry at Cardington, is to have five heavy-oil engines, notwithstanding the fact that the *R–101* is to be equipped with the Rolls Royce Condor petrol engine. The *R–101* engines are to be mounted in five cars, one on the center line aft, and two wing cars.

In respect to *R–100*, six engines are to be used in three power cars. It is stated that the power cars are approximately 30 feet long, one engine driving a pusher propeller and the other engine a tractor propeller.

The fuel for the engines of *R–100* is to be carried in tanks holding approximately 225 gallons each. The tanks are to be located in the first and second panels on each side of the bottom center line of certain transverse frames. No slip tanks are to be fitted, but instead certain tanks are to be equipped with soft-metal disks, 15 inches in diameter, in the bottom of the tanks, which are held in place by a bolted flange. Two small cutters, similar to the devices now fitted on certain tobacco tins, are to be fitted, so that the soft-metal disk can be cut out of the bottom of the tank quickly by one man, thus releasing the oil. The fuel tanks of the *R–101* weigh approximately 25 pounds each.

The air ministry is experimenting with a material called Rexine for the outer cover of *R–101*. Rexine is a cotton fabric, certain qualities of which are used as chair covers. It is to be impregnated to make it waterproof, and it will likely be silver gray in color. Experiments have been conducted with others colors such as black and red, but gray is the color that will probably be used. The fabric

is to be put on at an approximate stress of 15 pounds per inch, and it is planned to maintain the tightness of the cover by what are called "reefing" girders. These are light girders, two to a panel, which are to be forced out against the fabric by means of wires and turnbuckles. It is estimated that the weight per panel will be approximately 50 pounds.

The passenger accommodation is borne on a platform which is carried by wires distributing the load to various portions of the longitudinal and transverse frames. The platform does not rest directly on the longitudinal or transverse frames.

The work on the *R–101* is progressing very slowly. The best estimate obtained for its completion has been August, 1928. So far only 8 per cent of the duralumin has been delivered.

It is reported that the next budget will carry an item for the construction of a second airship shed at Cardington for the purpose of housing the *R–100*. *R–100* is being constructed at Howden, and while it is expected that the ship will be able, though with difficulty, to get out of the present shed, it will be impossible for it to return there.

NOTE.—The *R–100* and *R–101* are being built for Imperial airways service to Egypt and India. They will be considerably larger than our *Shenandoah*.—ED.

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3. *Husun Andrews enemy speed finder.*

The instrument is designed for use in aircraft for determining the course and speed of an enemy vessel.

The instrument consists of a metal frame fitted with a divided circle and suitable bracket fittings.

Inside the divided circle is the grid ring carrying a number of fixed parallel equidistant wires and a single adjusting sliding wire at right angles to the fixed wires; the grid ring also carries a substantial standard, or height bar. The standard or height bar is sealed for altitude and carries a slider in which a horizontal rod carrying a sight hole at the end can be set to any desired length and clamped.

METHOD OF USE

The aircraft is supposed to carry a pilot and observer, and also compass, turn indicator and altimeter, etc.

The pilot alters course until the observer, by rotating the grid ring, finds that his true course is approximately at right angles to the enemy's wake; he now moves his sliding wire up to the enemy's wake to get a better comparison, and course is altered again if necessary. By this time the enemy may be in an unsuitable position for an

accurate determination, so the pilot makes his compass direction and maneuvers for position, coming back to the compass course noted as approximately correct.

The observer meanwhile sets his height bar slider to correct altitude, and as soon as the pilot again steadies on his course he moves the sight hole along to a suitable position and checks his true course and the enemy's wake.

He now slides the sight hole along till the enemy's ship's bow, foremast, or any other prominent mark is exactly on his center rod wire, and starts his stop watch; after 30 seconds, or 1 minute's run, he observes how many wires the enemy ship has passed, and this gives the enemy's ship's speed directly in multiples of 5 knots (e. g., 4½ wire intervals equals 22½ knots).

By arranging the aircraft's course so as to cross the enemy's wake, when approximately directly above the enemy, an observation can be obtained before crossing, and a second one after crossing, by rotating the ring and sight through 180° by means of the divided circle and changing over from port to starboard bracket or vice versa if necessary.

At the same time, by reading the divided circle and taking into account the course steered by the aircraft, the observer has also found the enemy's ship's course as well as its speed.

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4. British aeronautics in 1926.

(*a*) The Bristol Aeroplane Co. (Ltd.): In addition to the production of aircraft of many types for the air ministry, the Filton works of the Bristol Aeroplane Co. (Ltd.) were kept steadily employed during the year on the manufacture of airplanes for foreign countries, including Chile, Hungary, and Bulgaria. Several new types of machines were produced. Certain of these machines were of all-metal construction, a development which the company has fostered for some time and for which it has made provision by the equipment of some large shops with the necessary specialized machinery. The machines turned out during the year ranged from 800 to 8,000 pounds in weight. Of the more interesting designs, it is, however, permissible to deal only with three.

The Bristol *Boarhound* is a two-seater fighting, reconnaissance, or day-bombing machine, of which the structure, except the fabric covering, is entirely of metal. The general design typifies the principles of metal construction evolved by the company. Particular attention has been paid to eliminating the possibility of failure as a result of fatigue or corrosion and by the reduction of the number of riveted joints to the facility with which repairs and replacements

may be made. The view afforded the pilot forward and downward is made to cover a wide range by the adoption of a sloping cowling to the engine end of a thin wing section, of a cut-away in the top center plane, of a small chord, and of a staggered bottom wing. The gunner's cockpit is so placed relatively to the bottom wing that he can fire vertically downward over the side of the fuselage. Dual control is provided. All the control surfaces are balanced, and the ailerons are of the patented Bristol Frise type, which, it is claimed, produce a very small yawing effect and insure adequate control at the stalling speed.

The military equipment, for the carriage of which provision is made, consists of a Vickers gun in the pilot's cockpit, a Lewis gun on a Scarff ring mounting in the gunner's cockpit, bombs, wireless apparatus, camera, oxygen, and signaling apparatus. The fuel is carried in two tanks, each holding 28 gallons, fitted in the wings, and in a 46-gallon tank on top of the fuselage. A 9-gallon oil tank is also arranged on top of the fuselage. An oil cooler is fitted below the fuselage and is provided with an automatic by-pass for regulating the oil temperature. The engine is a Bristol Jupiter, Series VI, and is provided with an exhaust ring and tail pipes to conduct the gases beyond the cockpits and to hide the flame during night flying. The machine has a span of 44 feet 9 inches and a wing area of 464 square feet. Its total weight is 3,994 pounds, of which 656 pounds represents the fuel and oil, 360 pounds the crew, and 448 pounds the military equipment. It has a maximum speed of 132 miles per hour and a minimum speed of 52 miles per hour. It can climb to 5,000 feet in 4.8 minutes and to 15,000 feet in 18.8 minutes. Its service ceiling is 21,800 feet and its absolute ceiling 23,600 feet.

The second Bristol machine with which we may deal is also a military one. It is known as the Berkeley bomber. The construction is again carried out in metal. The engine is a Rolls-Royce Condor of 660 normal horsepower and 720 maximum horsepower. The pilot is seated ahead of the wings and is afforded a good view forward and downward. In addition, as his eyes are level with the top wing, he can also see backward above and below that wing. The gunner is stationed well to the rear of the wings and has a good field of fire above and below the tail as well as downward. Under each wing bomb racks are placed to carry either one 520-pound, two 230-pound, or four 112-pound bombs. Four 20-pound sighter bombs are carried under the fuselage. All the racks are provided with quick-release pins. The bombs can be released from three positions and the releasing and fusing gear is operated by means of tubes and bell cranks and not by cables, which are liable to stretch. The bomber's obser-

vation aperture provides a good view forward and backward and also sideways. It can be closed by a shutter, which is bolted from the inside. Windows and swinging electric lights are arranged to illuminate the bomb sight and other instruments. The rudder control, operated by the bomber, can be automatically disconnected by the pilot at any time when he finds it necessary to take charge of the course of the machine. The machine is equipped to carry a camera and with long-wave, short-wave, and direction-finding wireless. All the wireless sets are mounted on quickly detachable panels. The engine is carried on a rigid mounting, which enables all adjustments to be made without removing the engine. The radiator is mounted on rubber baffles and is easily detached. It is arranged that the radiator shutters shall close more slowly toward the end of their range than at the beginning in order to increase the fineness of the temperature control. A water-header tank holding 4 gallons and fitted with baffles and a steam separator is fixed between the engine cylinders. A gas starter for the engine is mounted in the passageway between the cockpits. The petrol is carried in a gravity tank under the top-center section and in two main tanks in the fuselage. The overflow from the gravity tank is returned to the main tanks through a flow indicator. The aileron control is of the Bristol patented type already mentioned. It is claimed that, at bombing speeds, the operation of the ailerons has no effect on the rudder control and does not therefore affect the rudder movements made by the bomber.

The machine has a span of 57 feet 11 inches, an over-all length of 47 feet 6 inches, and a wing area of 989 square feet. It is equipped to carry 235 gallons of petrol and 19 gallons of oil, or sufficient for 5¼ hours' flying at normal power. Its total loaded weight is 7,935 pounds, of which 1,815 pounds represent the fuel, oil, and water, and 1,260 pounds the crew and military load. Carrying these weights, the machine is officially recorded to have a speed of 118 miles per hour at ground level and 100 miles per hour at 10,000 feet. It can climb to 10,000 feet in 13¾ minutes and to 16,800 feet—its service ceiling—in 35 minutes. The performance of the machine is guaranteed to within 10 per cent of these figures.

The third Bristol machine with which we will deal is the *Badminton*, a single-seater, primarily intended for cross-country racing and exhibition flying. This machine is driven by a Series VI Jupiter engine, fitted with variable timing gear, and cowled, to reduce drag, in sheet duralumin. The fireproof bulkhead in rear of the engine consists of asbestos sheet sandwiched between sheets of aluminum. The fuselage frame is built up of silver spruce struts braced by steel tie rods and is covered for the most part with three-

ply wood. The wing structure is carried out in silver spruce for the spars, ribs, and leading edge, the trailing edge and the internal struts being of steel tube, and the internal cross bracing of steel tie rods. Ailerons are provided on the bottom wings only. The interplane struts are of silver spruce and end in nozzles which are threaded right hand at the top end of the struts and left hand at the bottom end. The struts in this way are made to serve as turnbuckles to facilitate the adjustment of the incidence and gap of the wings. The fuel is carried in three tanks, namely, a 15-gallon gravity tank on top of the fuselage, a 35-gallon main tank inside the forward end of the fuselage, and a 10-gallon tank mounted on the port side of the fuselage beside the main tank. The main and side tanks are equipped with air-pressure feed, although except during climbing their position is such that they can feed the carburetor by gravity unaided. The oil tank, holding 7 gallons, is mounted on the starboard side of the fuselage opposite the side petrol tank. An oil cooler is incorporated in this tank. A second oil cooler is arranged to form the leading edge of the bottom center section of the wings. The machine has a total wing surface of 210 square feet, and with pilot and fuel weighs 2,460 pounds. Details as to its speed, etc., have not been furnished.

On the engine side the Bristol Co. continued to achieve great success with its Jupiter, Lucifer, and Cherub engines. The Jupiter engine is now made in three standard types. The high-compression service type has a compression ratio of 6.3 to 1 and develops 470 brake horsepower at 1,700 revolutions per minute at ground level. This type is particularly intended for machines normally operating at altitudes of 15,000 feet and upward. The standard service engine of 5.3 to 1 compression ratio develops 450 brake horsepower at 1,700 revolutions per minute at ground level and is intended for machines normally operating at medium altitudes and requiring the development of maximum power at ground level. The standard commercial type has a compression ratio of 5 to 1 and develops 420 brake horsepower at 1,700 revolutions per minute at ground level. It is particularly intended for commercial machines. Its relatively low rating insures increased life between overhauls and good running under varying conditions.

(*b*) A. D. C. Aircraft (Ltd.): The company, formerly known as the Aircraft Disposal Co., which, under Mr. Handley Page's directorship, was formed soon after the war to take over and dispose of the Government's surplus stocks of airplanes and aeroengines, is now known as A. D. C. Aircraft (Ltd.), and its works at Croydon is undertaking the manufacture of new designs of aero engines as a part of its activities. During the past year the Cirrus engine, a low-

power unit produced some time ago for use in light airplane, was designed and manufactured in a new form. The original design, which is not intended to be superseded by the new Mark II type, develops a normal 60 horsepower at 1,800 revolutions per minute and a maximum of 65 horsepower at 2,000 revolutions per minute. The new design was produced to meet a demand for increased speed or increased lift in light airplanes or for a low-powered engine to be used in light seaplanes. It develops 75 horsepower at the normal speed of 1,800 revolutions per minute and 80 horsepower at 2,000 revolutions per minute. Yet in spite of this substantial increase in power, the weight of the engine is actually 8 pounds less than that of the Mark I series, while its petrol consumption is 0.57 pint per horsepower-hour, as compared with the 0.66 pint of the earlier production. The features of the new type include the installation of a dual type of carburetor fitted with an altitude control, the use of a special impulse starting magneto, which makes it possible to start the engine with a very light pull on the propeller, the employment of connecting rods of stamped duralumin, and the heating of the induction system by the exhaust. On test the engine has given 88 horsepower at 2,200 revolutions per minute. Cirrus engines have found particular application in the de Haviland Moth light airplanes. We are informed that with a Cirrus engine a Moth can fly approximately 20 miles to the gallon, and that over a period of 18 months the average cost of replacement parts for the engine is under ½d. per mile. These figures compare very favorably with the corresponding figures for a motor car.

During the year the company produced another new type of engine, known as the Nimbus. This engine was designed to fill a hitherto unsupplied need, namely, that for a six-cylinder, water-cooled engine of medium power with its cylinders arranged in line. The Nimbus resembles outwardly the Siddeley Puma engine, but in its characteristics and in the details of its design, it is essentially different. Its normal output is 300 horsepower, as compared with the 240 horsepower of the Puma, while its weight is actually 10 pounds less and is only 2 pounds per horsepower, as compared with the 2.66 pounds of the other engine. During the Air Ministry type test the engine, running at 1,450 revolutions per minute and developing nine-tenths of its normal power—i. e., 270 horsepower—consumed 0.505 pint—0.474 pound—of petrol and 0.017 pint—0.019 pound—of oil per horsepower-hour. Subsequently, the engine was run up to 1,600 revolutions per minute, and at that speed developed 335.6 brake horsepower. It is claimed that the Nimbus engine gives a lightweight power unit of a simple and

trustworthy design without resort to gear reduction and without an unduly high airscrew speed. From the constructional point of view, it may be noted that the water jackets are two aluminum castings, each of which incloses three cylinders. The cylinder heads are bolted to the tops of the water jacket castings, and from them steel cylinder liners extend downward to glands at the foot of the jacket castings. One inlet and two exhaust valves serve each cylinder. The pistons are of aluminum alloy. There are two carburetors, each of which feeds three cylinders.

(*c*) The Fairey Aviation Co. (Ltd.): We generally look to the Fairey Aviation Co. (Ltd.), of Hayes, Middlesex, to supply us with some particularly interesting news concerning aeronautical developments. This year, however, strict secrecy surrounds all the new designs produced by the firm during the past 12 months. The *Fox* is now being supplied in quantities to the Royal Air Force, while two other types of the Fairey machine, namely, the *Fawn*, a three-seater Army reconnaissance machine convertible into a day bomber, and the *Flycatcher*, a single-seater deck-landing machine which is also employed as an amphibian, are now in extensive use in the force. Another design of Fairey machine, that known as the III–D type, maintained its prominence during the year. It was on four machines of this design that Wing Commander Pulford and his seven companions carried out their remarkable flight from Cairo to the Cape and back again to Cairo, and then on to England. For the stage from Cairo to England, the machines were deprived of the land carriages with which so far they had been equipped, and in their place were fitted as seaplanes with floats. The whole trip was performed to schedule, without mishap or incident. The firm continued to develop and employ all-metal propellers, of which it manufactures the Fairey-Reed type.

(*d*) A. V. Roe & Co. (Ltd.): Concerning the work of A. V. Roe & Co. (Ltd.), of Manchester and Southhampton, we can say very little, for most of it was carried out on behalf of the air ministry.

One of the military machines produced, known as the *Avenger*, is a single-seater fighting scout, and is equipped with a Napier Lion series 8 direct-drive engine. Attention may be directed to the extent to which the stream lining of all the surfaces contributing resistance has been carried. Even the engine is completely inclosed in a stream-lines cowling, and the propeller boss forms a natural continuation of the stream line fuselage. The radiator evicted from its normal position by reason of the cowling of the engine, is placed, in two sections, on the underside of the upper wings. A recess for a gun, firing through the propeller, is on the

side of the fuselage. The firm continued to develop the light airplane and produced a two-seater design of this class, known as the *Avian*. The wings of this machine are arranged to fold to a maximum width of 9 feet 6 inches. The construction is straightforward and orthodox, everything possible being done to cheapen and facilitate production.

(*e*) Boulton & Paul (Ltd.): Little can be said regarding the work done at the Norwich establishment of Boulton & Paul (Ltd.). The policy of standardization has been steadily developed and much valuable information has, we understand, been accumulated. The firm has applied modern aerofoil theory to the development of new aerofoil sections, with considerable success. Similar principles have been applied to the design of body forms. It is probable that more will be heard during the course of this year concerning these developments. The firm was busily engaged during 1926 on machines constructed to air ministry contracts, but concerning them nothing may yet be published. An interesting development of the company's extensive experience with metal construction for airplanes is the fact that it was chosen to manufacture the metal structure of His Majesty's airship *R–101*, now being built at Cardington. We learn in this connection that the firm's methods have resulted in a considerable economy of structural weight as compared with types of airship construction previously adopted.

(*f*) The Blackburn Aeroplane & Motor Co. (Ltd.): Three new designs of machines were produced during the year by the Blackburn Aeroplane & Motor Co. (Ltd.), of Leeds. Concerning one, the *Ripon*, we are not permitted to say more than that it is a torpedo plane developed from the firm's *Dart* machine. The *Sprat*, the second of the firm's new designs, is an "all-purpose" training machine, which may be fitted interchangeably with a land or a float chassis. It is a two-seater machine driven by a 275 horsepower Rolls-Royce Falcon engine. The top and bottom wings are of equal span and chord and are arranged to fold for storage purposes. A feature of the chassis is the wide distance between the wheels or floats, and the fact that each wheel or each float may be dismantled or applied separately. There is no cross axle between the wheels or floats, a fact which should render the machine unlikely to turn over on its nose if it should have to land in tall grass or corn. The pupil sits in a cockpit in line with the rear edge of the upper wing, and the instructor is accommodated in a cockpit still further aft. From both cockpits the view obtained is good; sufficiently good, in fact, to make the machine suitable for deck landing. The flying instruments are carried on the rear spar of the upper wing, just in

line with the pupil's eyes and also visible by the instructor in the after cockpit. As a land plane the machine has a top speed at all heights up to 5,000 feet of 100 knots and can climb to 1,100 feet in one minute. The landing speed is 39 knots, and the service ceiling 17,500 feet.

The company's third design produced during the year was the *Iris* triple-engined reconnaissance flying boat. This machine has top and bottom wings of equal span and chord and is provided with a biplane tail carrying three fins and three rudders. The original hull designed for the machine is of wooden construction and accommodates a crew, under normal conditions, of five. The accommodation and the facilities for intercommunication have been particularly studied, and the defensive armament provided is stated to render the machine practically invulnerable. A second hull of similar design, but of all-metal construction, is now being built. The engines are three Rolls-Royce Condors, of 650 horsepower each. Nothing may be said regarding the speed and other features of the performance of the machine. During the summer months, however, it was publicly demonstrated that it could fly on a level course or climb or be maneuvered with any one of the three engines shut down and even be turned to starboard with the port engine out of action. With only the central engine running, the machine flew with a loss of height that could not be detected without the aid of instruments.

(*g*) Sir W. G. Armstrong, Whitworth Aircraft (Ltd.): At the Coventry aircraft works of the Armstrong, Whitworth Co. steel construction continued to be developed during the year. On the military side the all-steel single-seater fighter, known as the *Siskin*, originally developed some few years ago, was built in a new form known as the *Siskin III–A*, the characteristic feature of which is that it is driven by a Jaguar 400 horsepower supercharged engine. The effect of using a supercharged engine is to increase the speed attained at most altitudes, at some even to make it greater than the speed at ground level. In the case of the *Siskin III–A*, the speed at ground level is stated to be 143 miles an hour, at 9,850 feet about 153 miles an hour, and at 19,700 feet about 141.

The machine can climb to the first-named height in 6.5 minutes and to the second in 17 minutes. Its ceiling is 27,000 feet. As definite particulars for the performance of airplanes fitted with supercharged engines are as yet scarce, we may add that a modified light type of Siskin machine, driven by a Jaguar supercharged engine, is stated to have a speed at ground level and at 19,700 feet of 155 miles an hour, while at the intermediate height of 9,850 feet its speed is 168 miles an hour. On the commercial side, the firm completed and delivered to Imperial Airways (Ltd.) the 20-seater Ar-

gosy passenger liner, of which we gave a general drawing in our review a year ago. Two of these machines are now in use on the company's routes. The machine has a cabin with a minimum head room of 6 feet, which contains seating accommodation for 20 passengers. In addition a crew of two is carried. It is driven by three Jaguar engines placed one at the nose of the fuselage and two approximately in line with the first pair of wing struts on each side of the body. With a full load and only two of the engines running the machine will maintain a height of at least 2,000 feet. With very little effort on the controls it will fly straight, though not necessarily level, with only one engine in action. The fuselage is constructed of steel tubing, but the wings may be either of steel or wooden construction. The machine has a span of 90 feet, a length of 64 feet 6 inches, and a height of 19 feet. Fully loaded it weighs 18,000 pounds, of which 4,500 pounds represents the paying load. Its top speed is 110 miles an hour, and at the cruising speed of 95 miles an hour its endurance is four hours. The pilot's cockpit is fitted with dual control. Wireless apparatus is carried in a compartment immediately behind the cockpit. The passengers' cabin is provided with electric lighting and a ventilating and warming system. On the experimental side the firm completed and delivered to the royal aircraft establishment at Farnborough three specially designed airplanes for aerodynamic research.

These machines are constructed in such a way that (*a*) the frame may be lengthened or shortened; (*b*) the center of pressure may be altered; (*c*) the gap and stagger of the wings may be changed; and (*d*) three different sizes of tail plane and rudder may be fitted. The machines are intended particularly for experiments on stalled flight, and are provided with very long travels in their oleo-landing gear, in order that landings may be made with the machines in the fully stalled condition. The firm is continuing to develop its system of metal construction, and is engaged on experimental work for the air ministry.

(h) The Gloster Aircraft Co. (Ltd.): At the Cheltenham works of the Gloster Aircraft Co. (Ltd.), metal construction figured prominently in the year's work. Several of the company's designs originally carried out in wood, such as the *Gamecock* and the *Gorcock*, both single-seater fighters, were redesigned in steel. Two new two-seater fighting machines were produced. One of them, the *Goral*, is of all-steel construction. Nothing may be said about either. The *Gambet* machine, a new design produced during the year, resembles the firm's *Gamecock*, but is particularly intended for deck-landing purposes. It is a single-seater high-speed scout, and is fitted with a Bristol Jupiter Mark VI engine of 420 horsepower. As it represents

a very modern design of its class, we give below a list of its principal dimensions, etc.:

Gloster "Gambet" deck-landing scout

Wing surface	284 square feet.
Span—	
Top	31 feet 10 inches.
Bottom	26 feet.
Chord—	
Top	5 feet 6¼ inches.
Bottom	5 feet 2½ inches.
Gap	5 feet.
Petrol capacity	72 gallons.
Oil capacity	7 gallons.
Duration	3½ hours at 15,000 feet, with full load.
Ceiling	23,000 feet.
Speed at—	
5,000 feet	152 miles per hour.
10,000 feet	145 miles per hour.
15,000 feet	138 miles per hour.
Landing speed	49 miles per hour.
Climb to—	
5,000 feet	3 minutes.
10,000 feet	7 minutes.
15,000 feet	11 minutes.
Total loaded weight	3,075 pounds.

The petrol is carried in two 36-gallon tanks, recessed into the top planes from which the feed is taken by gravity. The armament consists of two Vickers guns mounted at the sides of the fuselage and firing through the propeller. Provision is made for racks to carry four 20-pound bombs. It may interest our readers to know that on the front truss of the wings the factor of safety is 7½ and on the rear truss 5. On the body, counting the landing loads, it is 6, and it is 6 also on the landing gear and tail skid. It may be remarked that in airplane design, factors of safety are based on the stresses imposed on the structure during normal flight, and not on the maximum stresses which the structure may be called to bear. During a loop or other maneuver the factor of safety may be considerably less than the normal figure. The Gloster Co. has for several years given close attention to the design of racing machines. The *Gloster III* seaplane, which finished second in the 1925 Schneider cup race, was, during the past year, greatly improved. It was fitted with wing radiators and a forged propeller and generally cleaned up, and is now being used for practice purposes by racing pilots at Felixstowe. An improved, and it is hoped record-breaking, machine,

the *Gloster IV*, is now rapidly approaching completion. An interesting item of news concerning the company is that it has acquired the world rights for the manufacture of the Hele-Shaw variable pitch propeller. This propeller is now undergoing extensive tests with, we understand, very promising results.

The device is operated by means of a variable-stroke reversible oil pump, which causes the propeller blades to move in either direction. The working of the pump is controlled by a governor which is set so that the pitch of the blades is automatically varied to give a constant engine speed. A separate hand control is provided to vary the setting of the governor.

GREECE

A. NAVAL

1. The policy of the Greek Navy.

The navy has been handicapped by the political sympathies of its officers. They have taken an active part in politics, and after each of the revolutions during the last eight years there has been a complete change of officer personnel in the higher ranks, and this has always meant a change of policy.

When the British Admiral Webb made a survey of their navy, with a view to making recommendations for its improvement, he recommended that most of the obsolete vessels be scrapped and that a building program be adopted for replacements. This policy was adopted but was not popular with the Greek people. Then the English loan for construction failed to materialize, and finally, when Pangalos overthrew the Government in June, 1925, he made a complete change of officer personnel, with its consequent change of policy. The withdrawal of the British mission was requested, and a plan for reconditioning the old ships was drawn up, but very little has been accomplished. The only policy which appears not to change with changes of government is that of "keeping abreast of Turkey." This is further borne out by the number and type of vessels reconditioned and ordered since the war.

In November, 1925, a staff college was opened, but it has never had the sympathy of the Government and little has been accomplished. It appears that none of the recent Governments has trusted the navy and has not wished to see it well organized under a strong leadership.

The organization of the navy is not available at this time.

NOTE.—A new British mission has been requested and assigned to Greece since the first of the year.—ED.

2. Submarines ordered by the Greek Navy.

About the middle of 1924 an order was placed with the Chantier de la Loire for two submarines to be delivered in July, 1926. Three others were ordered from the same company in 1925, one of these to be a mine layer. There had been no delivery at the end of 1926.

One small mine layer is reported to be building by an Italian company.

NOTE.—The submarines building in France are of two classes: (*a*) 730–930 tons, 14–9.5 knots speed, eight 21-inch torpedo tubes; (*b*) 605–775 tons, 14–9.5 knots speed, six 21-inch torpedo tubes. Delivery should begin by the end of 1927.—ED.

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3. Changes, repairs, etc., to the ships of the Greek Navy.

The *Averoff* has been reconditioned.

The *Chios* was converted into a repair ship and her name changed to *Ephistias*. The work was done by the Palmers Shipbuilding Co. and is said to be a very satisfactory job.

There are extensive proposed repairs to several other vessels, but their completion is so doubtful that it need not be mentioned at present.

NOTE.—The *Averoff* is an armored cruiser (1910) mounting four 9.2-inch and eight 7.5-inch guns.—ED.

B. AERONAUTICAL

1. The aviation strength of the Greek Navy.

The latest report shows Greek naval aviation strength to be as follows:

Bristol fighters	6
DH No. 9 (under repair), bad condition	9
Combination sea or air plane (type unknown)	5
Swifts	9

ITALY

A. NAVAL

1. Fleet activities.

Upon the completion of the recent holidays short tactical exercises have been ordered for the fleet. These will take place during the movement of return to their winter bases preparatory to periodic overhaul and the receipt of the new enlisted levy. A c and s m will cooperate in the Ionian and Tyrrhenian Seas, concentrating at Taranto and Spezia. Individual ship drills will be followed by

maneuvers of the fleet, which will be divided into opposing sections. The maneuvers will include tactical operations preceded by scouting and night attacks by destroyers. Importance is attached to the inclusion of aircraft in these maneuvers. Experiments in communication methods will be carried out. Visits will be made to various ports of the two seas.

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2. *"Turbine" class destroyers.*

The characteristics of the destroyers of the turbine class now under construction, two of which were launched January 28, 1927, are stated to be the same as the *Sauro* class, except the S. H. P., which is 35,000=35 knots, and the displacement, 1,355 tons. The armament is the same: Guns, four 4.7-inch; tubes, six 21-inch; and three 1.7-inch antiaircraft machine guns.

It is announced that the remaining six ships of the Turbine class will be all launched within the next six months.

NOTE.—The eight boats of the Turbine class are of 1,330 tons, mount four 4.7-inch guns, and six 21-inch torpedo tubes. The four of the *Sauro* class are of 1,280 tons, four 4.7-inch guns, six 21-inch torpedo tubes, and carry 30 mines.—ED.

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3. *Submarine launching.*

The submarine *Balilla* was launched recently at the Absaldo San Giorgio yard (La Spezia). The *Balilla* is a wide-radius submarine and may serve as mine layer.

Characteristics

Tonnage		1,400
Length	feet	285
Width	do	25
Maximum depth	do	328
Maximum speed on surface	knots	18½
Maximum speed submerged	do	10
Time for immersion	seconds	30
Armament:		
Torpedo tubes, 21-inch		6
Gun, 4.7-inch		1
Tube for laying mines		1
Engines:		
Internal combustion, total horsepower 4,400		2
Auxiliary, 425 horsepower		1
Electric motors for propulsion	horsepower	2,200

Other ships of the same class now under construction are the *Millelire*, the *Scesa*, and the *Toti*.

NOTE.—Italy is building a total of 12 submarines. See a special article appearing in the January BULLETIN, entitled "Practical and Strategical Considerations of Submarine Types," in reference to this class of boats.—ED.

4. Government relation with merchant marine.

Royal decree No. 365 contains the following:

The structures of merchant vessels with metallic hulls must be such that they will permit the installation of guns of 5.1-inch caliber, to be mounted in time of war, should it be necessary to arm the vessels for defensive purposes. The constructors of vessels with metallic hulls must submit drawings and specifications to the chief of staff of Ministry of Marine, who will then specify and order the work to be done accordingly.

Article 19 of above royal decree authorizes the following appropriations (to be charged to the budget of Ministry of Marine) for fiscal years 1926–27/1937–38: Yearly allotment, lire 5,000,000.

With this system of State subvention to steamship lines, State subsidy and easy terms for naval constructions, State subsidy for "special specifications," together with placing of Italian naval officers on board of merchant-marine liners and appointment of captains for merchant-marine vessels, subject to approval of Government authorities (oath of allegiance to present régime, etc.), the Italian Government has a strong grip and control over the whole national merchant marine, which is being rapidly and steadily placed in efficient state of preparedness for auxiliary service in time of war.

B. AERONAUTICAL

1. Acquisition of Fokker planes.

The Italian Air Ministry has just placed an order for 15 machines, observation type, with the Officine Ferroviarie Meridionali, building Fokker planes in Italy. The machines are assorted as to engines and wing area. The latter are of two classes—28.8 and 39.3. Only engines of Italian manufacture will be used, such as the Jupiter (Italian rights), Lorraine, Hispano, Fiat, etc. No information is available as to ordnance nor date of delivery.

It is reported that this machine has successfully completed severe tests and appears to be excellent.

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2. Increase in landing fields.

The Ministry of Aeronautics, with the intent of solving as soon as possible the complex problem of the organization of aviation in the inland of Italy, is preparing a decree which will direct that each Province of the Kingdom shall provide for the selection, organization, and upkeep of an emergency field.

Following such a decree, Italy in a few months might be equipped with an almost perfect network of aviation fields which would offer flyers a practically complete organization. This network of aviation

fields will also contribute largely to the development of civil aviation, encouraging air communications between all the centers of Italy, to the general benefit.

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3. Flight in Italian bombing and torpedo plane.

During a recent visit to Montecelio, the experimental station near Rome, a flight was made on the *BR–1.* It was learned that the machine will be the standard single-engine bomber, and a large order has been placed. It is intended to increase the engine power from 700 to 900.

The machine is single control, fitted to carry bombs or torpedos, the release of which is manual and mechanical. Clear wing fabric is used. The machine uses elastic shock absorbers and is not fitted with brakes. Being light, the machine took off very quickly and climbed fast. With estimated speed of about 90 knots, the machine executed loops and wing overs very smoothly and with plenty of reserve power.

An interesting feature of the machine was the manner of compensating for the wind drag against the machine-gun mounting in after cockpit. The scarf mount is fitted with a back rest for gunner, and just over this, at 180° distance from gun suspension, is a tube fitted inside and around its surface with two springs. The ends of the tube are slotted, and pins in this slot travel against the pressure of the springs. The pins are actuated by rocker arms attached to rollers, which in turn move in a path eccentric with the scarf ring itself. The rocker arms to which the vertical compressing pins are attached are fastened to a spindle in a vertical bearing fitted to the inner circumference of scarf ring. The lower end of this spindle carries an arm leading underneath the bearing ring. A roller on this arm runs in a recessed cam path underneath and eccentric with the bearing ring. The eccentricity is forward of the center, so that positions of rollers and springs are normal only when gun is trained directly ahead. As soon as scarf ring is moved from this position the eccentric path tends to move rollers away from the center of the circle. This movement in turn causes the pins to compress the spring. The effect is to compress the spring by training of the gun aft. When started forward the tension acts to assist the movement against the drag of the slip stream. This system is Italian designed and not manufactured by any civilian firm. One or two of the pilots appeared dubious as to the value of the apparatus, but neither did they appear to be familiar with gunnery problems.

On the whole, the plane is quite pleasing and appears to fulfill all expectations.

4. Appreciation of American courtesy.

The following excerpt from the official Rivista Aeronautica of January, 1927, is given as a matter of interest as to the reaction on the Italian team of their treatment and the fact that this acknowledgment will gain considerable publicity.

THE SCHNEIDER CUP (1926) RACE—CHIVALROUS AMERICAN CORDIALITY

We wish to call the attention of our readers and in general of all Italians to this cordiality before entering into our narrative of the Schneider race. If this race has given us the occasion of showing the world the goodness of our apparatus, of our engines, and of our pilots, it has also enabled us to appreciate the sympathy and friendship existing between our aviation and American aviation. This friendliness and sympathy have never been troubled by the slightest sign of opposition on the part of the Americans, either during preparations or in the heat of the competition, or later in the acknowledgment of our victory. The Americans have from the very beginning to the end given us generous help and facilities, just as if instead of being their competitors we were part of the same team. The chivalrous conduct of the United States aviation, from the highest authorities to the individual pilots, has left on all of us the most pleasant memory of the Schneider cup race of 1926.

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5. New planes for 1927 Schneider cup race.

The Ministry of Aeronautics has already issued orders concerning the new machines which will enter the Schneider cup race to be run in 1927. They will be built by the Macchi Co. and designed by Engineer Castoldi. The engines will be supplied by the Fiat Co. The greatest secrecy is kept on the machines and the engines.

It is probable that a special squadron will be formed under the direction of Major de Bernardi for training several pilots for the race. The training period will begin soon, and it is believed that a new attempt will be made to break world records for seaplanes so as to increase the list of Italian world records.

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6. 1927 Schneider race at Venice.

It is announced that Venice has been finally chosen for the theatre of the 1927 Schneider cup race. A committee composed of Majors Guglielmetti and Palamenghi (Royal Italian Air Force), Signor Domenico Giuriati, and Engineer Renato Morandi, representing the Venice Aero Club, is now at work on the spot preparing the organization of the race. Major de Bernardi has recently visited Venice to choose the best place for running the race, and although his decisions are not officially known, it is believed that the route will have for extremities the buoy of San Nicolo' di Lido and the waters of Chioggia. Stands for the spectators will be raised on the Lido.

7. Commercial aeronautical activities.

Plans are in progress for the manufacture at Naples of the Dutch plane "Fokker" by the Alfa Romeo Motor Co. With this exception, all commercial aircraft manufactured in Italy are hydroplanes and are made in the northern cities of Italy. The Costruzioni Meccaniche Aeronautiche Co., Marina de Piza, manufacturers of the Dornier Wal hydroplane, is said to have a paid-in capital of 6,000,000 lire. Another important aircraft factory is situated at Trieste. Four types of motors are in general use in Italy—the Fiat, the Bristol, the Rolls-Royce, and the Jupiter. The last two are imported. There are four engine factories in Italy—Fiat, Isotta-Fraschini, Romeo, and Piaggio.

Owing to the geography of their country, Italians believe that the hydroplane is the type of greatest utility. Also, a preference for the monoplane is manifest.

The German firm of Junker, represented in Italy, has sold four all-metal land planes to the Societa Transadriatica of Ancona. It should be borne in mind, however, that they are used in the trans-Alpine service recently inaugurated between Venice and Vienna.

Judging from the reports received, there is in Italy a marked lack of public confidence in the present development of flying equipment, especially in its safety and practicability. Hence sales of aircraft to individuals are virtually nihil.

The same conditions apply to miscellaneous equipment as are applicable to the sale of planes and motors. Parachutes are held of little value to passengers traveling in cabins. Propellers, dope, finishes, fittings, cables, and tires are all manufactured in Italy.

The only foreign firms represented in Italy are the Dutch firm Fokker and the German firms Dornier and Junker. The Fokker Co. has reached an agreement with the Romeo Co., of Naples, by which this company will build their planes in Italy and try to sell them to the Italian Government or private commercial firms and to nations (Rumania, Czechoslovakia, Yugoslavia, etc.) which, on account of the exchange rate, could never buy them from the principal factory in Holland. The Fokker Co. also has an agent in Rome who keeps in close touch with the Romeo Co.

In 1920–21 the Dornier Co. erected a plant at Marina di Pisa, where their all-metal seaplanes are manufactured. The present Government, however, insisted that the name should be Italian, that the majority of stock in this company be held by Italian citizens, and that management be Italian. However, the majority of workmen and the technical directors are Germans.

The Fokker Co. has succeeded in selling to the Italian Government for military purposes an experimental squadron of 15 observation planes. The original Dutch company had been trying for several years to introduce their type in Italy, but the very high gold price had prevented both Government and private companies from concluding any contract. After the agreement with the Romeo Co., of Naples, price was sensibly reduced and a contract for an experimental squadron (15 machines, as stated above) finally signed.

The Dornier Co. has sold about 10 Dornier Wal all-metal seaplanes to the Piaggio Co. for operation on the Genoa-Rome-Naples-Palermo air line, passenger, mail, and freight. These machines were built entirely at Marina di Pisa, and this sale should not be considered as a German sale to Italy. However, the Dornier type being 100 per cent German, it is the same case as that of the Fokker plane being built by Romeo.

The Junker has sold three single-engine and one 3-engine all-metal landplanes to the Società Transadriatica of Ancona, which operates the Venice-Vienna passenger line. Negotiations are in course with a view of buying two additional 3-engine ships for this line. This is a pure German machine, entirely built in Germany.

SALE OF ITALIAN MACHINES ABROAD

The Italian aeronautical press now and then reports of sales of Italian machines abroad. Lately the Agenzia Volta made an official statement that seaplanes had been sold to Soviet Russia. It has frequently been stated that Russia was negotiating for the purchase of Italian seaplanes (Savoia), but it is understood that none were delivered, as Russia desired to pay with raw materials and the Italian manufacturers refused to deliver until payment in gold, prior to shipment, had been made.

It is positively known that the Dornier Wal seaplane, both for commercial and military purposes, built at Marina di Pisa, has been sold to Spain, South America, and Japan; that the S–16–ter military observation seaplane built by the Savoia Co. has been sold to Spain; that a few Fiat and Ansaldo planes were sold to Poland in 1926 for military purposes, but no exact data could ever be ascertained.

Italy has at present four commercial air lines in operation, viz:

(*a*) The Genoa-Rome-Naples-Palermo air line: This line will be extended to Barcelona (Spain) during 1927. It uses the Dornier Wal seaplane (Rolls Royce or Jupiter engines) and could not at the present time, at least, employ American machines, because a contract for a sufficient number of seaplanes has already been signed with the Dornier Co., of Marina di Pisa.

(*b*) The Turin-Venice-Trieste-Zara air line: This line is run by the Sisa Co., of Portorose, which is a branch activity of the shipyard "Cantiere Navale Triestino." Seaplanes for this line, Cant–10 type, are built by the "Cantiere Navale Triestino," and it is not believed that this line offers a market for American machines for the reason that, it being a branch of the Cantiere, the latter company will naturally wish to use its own product. In 1927 the line will very probably use three-engined ships, Cant–6 type, to meet the requirements of increased air traffic.

(*c*) The Venice air line: This line is operated by the Società Transadriatica of Ancona and uses Junker single-engined and three-engined all-metal land planes. It is contemplated to extend this line to Rome during 1927. There is no probability of it adopting American aircraft, as the company is cointerested with the Junker in running the line.

(*d*) The Brindisi-Athens-Constantinople air line: This line, which started operations in August, 1926, failed in December of the same year after only five months' operation. It was started with seven Savoia-55 double float seaplanes, two-engined, carrying 14 passengers, but four machines were lost in the short period of time mentioned above and the company obliged to close down. The line will be resumed in 1927, but it has not yet been decided what seaplane type should be adopted. As this line will probably be absorbed in the Aero Lloyd Italiano, described below, the chances for the introduction of American machines will depend on the ability of American manufacturers to fulfill the technical requirements described in the following paragraph, as well as to compete in price with Italian concerns.

CONTEMPLATED COMMERCIAL LINES

A very important financial group, the Aero Lloyd Italiano, was constituted in Italy a few months ago. This group, with a capital of 50,000,000 lire, intends absorbing, if possible, the commercial lines already operating in Italy, with the exception of the Barcelona-Genoa-Rome-Naples-Palermo operated by the Piaggio Co. (which would probably be too expensive for absorption), and opening new lines to France, Switzerland, Germany, Austria, and other surrounding countries. It is reported from various sources that Germany is cointerested in the Aero Lloyd.

The technical manager of the company has been approached in order to find out what types of machines are being contemplated for adoption. He stated that while the Italian ministry would like 100 per cent Italian ships to be used, they must have recourse to foreign

firms as they can not find in Italy any satisfactory type. The three-engined Junker and the Fokker built by Romeo in Naples are being considered for lines over land. The Fokker, of course, would be the commercial type. The Dornier Superwal, the latest type built in Germany, is likely to be adopted for lines over water. The machine would be constructed at the Dornier shops at Marina di Pisa.

The Lloyd, however, would favorably consider American machines, both built in the United States and in Italy under license, if they would only satisfy certain requirements, the most important of which is that the ship should be able to cover a minimum of 800 kilometers (500 miles) in a nonstop flight, with a crew of two and from six to eight passengers. Price, of course, is also of prime importance.

The commercial lines in operation in Italy have been listed above. Military aircraft is widely used in Italy, but preference of design and type is usually given by the Air Ministry to the national industry. Another adverse consideration for American planes is that the cost of United States military types is never less than from three to four times that of the corresponding Italian type.

As far as commercial types are concerned, seaplanes are considered by Italian firms more valuable than landplanes, in view of the geographical position of the country. For communications, however, with northern countries, starting from Rome or Genoa, Milan and Venice, the landplane is now coming into use, and, as stated before, Junker machines are slowly gaining the market, while Fokker are being considered for future adoption.

German manufacturers undersell their machines in Italy, but in cases as with the "Società Transadriatica" and the "Aero Lloyd," they prefer to participate in the organization and operations of the line and share the profit with the Italian operating company. This is clearly the case of the Junker Co.

As far as protection of Italian aeronautical industry is concerned, it is clear that the Government will not, as long as possible, buy or permit to buy foreign planes while the national firms are making every possible effort to export their products. It must be remembered that all commercial lines in Italy are subsidized by and under control of the Government through the Air Ministry, so that they are not free to buy the types they would like, unless duly authorized by the air traffic bureau (a branch of the Air Ministry), which will not grant authority unless it is clearly established that the Italian industry can not produce anything similar, due to difficulty of production of raw materials or on account of patented designs, or, again, for lack of special machinery or specially skilled

personnel. The financial problem also has great importance in the problem of protection of Italian aeronautical industry. The American machine at pre-war dollar rate (5.18) would not be prohibitive in price, but should such a rate of exchange be reestablished it may be expected that Italian labor, in addition to raw materials—which are for the greater part imported from abroad—would decrease in more or less the same measure, so that finally the Italian product would be always cheaper. Germany, however, heavily subsidized by her Government, can undersell to Italy, and her types are accepted both because of all-metal construction, which is still in its infancy in Italy, and of very favorable contract terms, including agreements of different kinds. In addition, German commercial planes have been seriously tested during long periods of time and found satisfactory.

MILITARY PLANES

Italy is going through a very serious crisis as far as satisfactory types of military planes is concerned, and it is openly recognized in official circles that American types are far superior. However, national pride would prevent the ministry from buying any foreign type as it is desired that the air force should be equipped only with machines of Italian design, built in Italy. Then, of course, the question of difference in cost comes up again.

COMMERCIAL PLANES

Should an American machine prove fully satisfactory and fulfill all requirements, it is not impossible that some agreement could be reached with the Aero Lloyd or other firm for the future, provided price could favorably compare with continental rates. It is believed that the basis for an agreement could be either cooperation with the Italian company (just as German companies are doing) or concession to an Italian firm to build the American plane in Italy. This second scheme has also the advantge that a market could be found in Balkan States or other countries with depreciated currency, Italy being used as a bridge. In this respect it is known that the Handley-Page Co. (England), having signed such an agreement with a Belgian firm, has now approached the Caproni firm of Milan, with a view of having their type built by the Caproni Co., who would then try to sell it to the Italian Government for military purposes or to private commercial companies or again to other countries.

There are four engine factories in Italy, viz, Fiat, Isotta-Fraschini, Romeo, and Piaggio.

Fiat manufactures three Fiat types, water cooled, and has under study some air-cooled types, intended for commercial aircraft. Isotta-Fraschini manufactures the Asso type, water cooled, and the Lorraine under license. (Royalty is paid for each engine produced.)

Romeo and Piaggio manufacture the Jupiter under license. (Royalty is paid as above.)

The Italian Government is trying to discard the Lorraine entirely. The Jupiter is not used for military aircraft but is still being used for commercial ships, at least until the new Fiat air cooled will come out—not less than 18 months or 2 years—for quantity production.

The Fiat water cooled and the Asso are considered satisfactory; their production is highly encouraged. Water-cooled or air-cooled American engines, although their superiority is fully recognized, could only be sold to Italy if they could compete in price with the local production. On account of the satisfactory performance of Fiat and Isotta water-cooled engines, American engines, water cooled, probably could not find a market in Italy, even though constructed here under license, but they could be built and exported to other countries, competing with the Italian, German, and French engines.

American engines are considered the very best in the world, only a few British engines being quoted in the same class. Their price, however, at the present rate of exchange (1 dollar=22 lira) is considered prohibitive. The cost of the very best Italian water-cooled engine (Asso), 500 horsepower, is about 125,000 lira.

Italy does not want to buy foreign engines. Hispano-Suiza 300-horsepower engines were bought a few years ago, and then license for the Lorraine and Jupiter purchased, as Italy at that time had no Italian-designed motors of sufficient horsepower to fulfill her needs. Since the Fiat and Isotta started the construction of their water-cooled engines, no motor has been bought abroad.

JAPAN

A. NAVAL

1. H. I. J. M. S. "Furutaka."

Frontispiece is a photograph of the new Japanese light cruiser *Furutaka*. She is of 7,100 tons, mounts six 7.5-inch guns in single turrets, four torpedo tubes, and was designed for 33 knots. Her interesting ordnance feature is in the distribution of her guns and the method of their mounting.

2. Allocation of construction.

In connection with the replacement program, the Navy Department has announced that future construction placed with private yards will be allocated as follows:

Capital ships: Mitsubishi yards, Kobe and Nagasaki; Kawasaki yard, Kobe.

Cruisers: Mitsubishi yards, Kobe and Nagasaki; Kawasaki yard, Kobe; Uraga dockyards, Uraga; Yokohama dockyards, Yokohama.

Destroyers: Ishikawajima yard, Tokyo; Fujinagata yard, Osaka.

Submarines: Mitsubishi yard, Kobe; Kawasaki yard, Kobe.

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3. Launching of cruiser "Myoko."

The *Myoko*, 10,000-ton cruiser, will be launched at the Yokosuka Navy Yard about April 18, 1927. Prince Takamatsu will represent the Emperor at the launching.

Another 10,000-ton cruiser will be laid down at Yokosuka as soon as the *Myoko* is launched.

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4. Japanese grand maneuvers, 1927.

The following plans for the grand maneuvers of the Japanese fleet, 1927, have been tentatively adopted:

Forces:

Blue fleet (attacking).—Vice Admiral H. Kato—
The combined first and second fleets.

Red fleet (defending).—Admiral K. Okada—
Reserve ships from all naval stations.

Air forces.—From the Kasumigaura, Yokosuka, Sasebo, and Omura naval air stations.

Observers.—Students from the Higher Naval College, gunnery, torpedo, submarine, engineering, and paymaster's schools, and the Naval Academy will attend as well as officers from the various navy yards.

Mission: The defense of Tokyo. Yokosuka will be the main base of the defending fleet, with Kure and Sasebo as secondary bases. The operations will cover the sea area from the Kuriles to the South Sea Islands.

Period of the maneuvers: Ten days, beginning October 10, 1927.

Budget: The budget for 1927–28 includes an appropriation of $2,500,000 for these maneuvers.

5. Operating schedule of Japanese Fleet.

The following is an outline of the operating schedule of the first and second fleets for the period, December 1, 1926, to November 31, 1927:

Dec. 1 to Jan. 31: Overhaul	At home ports for overhaul; training of independent units.
Feb. 1 to 17: First training periods, target practices.	First and second fleets assemble off Mitajiri.
Feb. 18 to Mar. 15: First training periods target practices.	Off Mitajiri and in Hiroshima Bay for torpedo and gun practices, air exercises, mine sweeping, communications.
Mar. 15 to 31: First training periods, target practices.	In western part of Inland Sea and off the southeast coast of Kyushu. Torpedo and gun practices.
Apr. 1 to 25: Cruise, inspections	First fleet proceeds to Manchuria and Korean waters. Second fleet to waters east of Formosa; inspections; both fleets hold combined exercises.
Apr. 25 to May 31: Overhaul	At home ports for overhaul: partial change of crews; training of independent units.
June 1 to July 5: Tactical exercises.	First fleet operating off south coast of Honshu, second fleet operating off south coast of Korea and off southeastern and west coasts of Kyushu; individual fleet training, followed by combined fleet exercises.
July 5 to Aug. 20: Second training period, target practices.	Operating in the Inland Sea, off the southeast coast of Kyushu, and in waters off the southeastern islands (Amami-Oshima, Ryuchu, etc.); gun, torpedo, and mining exercises.
Aug. 20 to Sept. 1: Fueling	In western part of Inland Sea for fuel and supplies.
Sept. 1 to Oct. 30: Tactical exercises, grand maneuvers.	Operating off west coast of Kyushu, in the Japan Sea, and off southern coast of Korea; inspections; preparing for and holding grand maneuvers. Oct. 10 to 20; for this maneuver reserve ships and vessels attached to naval districts will be formed into the red or defending fleet; operations will extend to Hokkaido and the Kurile Islands.
Nov. 1 to 30: Overhaul	Home ports for overhaul: partial change of crews; training of independent units.

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6. Visit to Sasebo naval station.

PLANT FACILITIES AND EQUIPMENT

Sasebo is a first-class navy yard, but as an industrial plant it is secondary to Kure and Yokosuka, in that it possesses facilities for

building ships only up to about 10,000 tons. There is no steel plant and only a small forge shop, with heaviest press 1,000 tons. The yard is well laid out, with modern, well-lighted shops, and ample room for extension of plant. There are five modern concrete dry docks, and this yard is evidently maintained as a major fleet base, capable of docking a considerable number of ships simultaneously in an emergency and effecting any kind of major repairs. It has a fine natural harbor, with a uniform depth of water of about 7 fathoms and a narrow, easily mined entrance. The surrounding high hills are heavily fortified, and near-by bays and inlets are too shallow for any naval operations against the base.

Building ways.—One medium-size concrete building way capable of taking a ship of about 10,000 tons. The keel of a destroyer had just been laid on this way.

One small concreate way for submarines; *I–63* on this way.

New construction inspected.—Submarine *I–63*, 1,400 tons, 35 per cent completed; double-hull construction; neither bow nor stern construction yet started.

Destroyer *No. 40*, 1,700 tons, 2 per cent completed; keel just laid.

Engineering.—Turbine rotors, casings, shafting, and Yarrow boilers for cruisers seen in shops. Turbines were combined Curtis-Parsons types. No vessels of this class are being built at Sasebo, and this material is shipped to other yards for vessels under construction.

Personnel.—Six thousand civilian workmen. There is an apprentice school which has about 300 boys enrolled; apprenticeship, three years; forenoons, classes in grammar-school subjects; afternoons in shops.

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7. *Tokuyama fuel depot.*

PLANT FACILITIES AND EQUIPMENT

This station is a splendidly equipped plant for the stowage of fuel oil and other oils, refining of gasoline and kerosene on a small scale, manufacture and stowage of briquets, and experimental work in shale distilleries and burning of fuels. It covers an area of about 500 acres, with ample room for expansion. The water front has been developed with sea wall and basin for loading and discharging oil barges or ships, and a cement coal dock.

Briquet plant.—The main plant operates on an annual output of 200,000 tons of smokeless briquets, which can be increased, running 24 hours a day, to about 600,000 tons a year. The equipment is of French design and manufacture, and consists of two washing units of

60 and 30 tons per hour total capacity and four press units of the same total capacity. Both egg and brick-shape forms of briquets are manufactured. Pitch binder is used. Korean coal is used for smokeless briquets.

There is another smaller plant, with total capacity of 13 tons per hour, which manufactures briquets for commercial use without the washing process. Kyushu coal is used in this plant.

Laboratory.—Small, but well-equipped for fuel and gas analysis.

Shale-oil distilleries.—Two experimental units for distillation of fuel oil from coal and shale; a production of 6 per cent, by weight, of fuel oil is attained using Manchurian shale.

Oil refineries.—One unit using the Closs process, another using the Trumble process; total maximum capacity, 150 tons per day of gasoline and kerosene.

One experimental unit using cracking process.

Tankage.—Fuel oil: Forty-two 7,000-ton steel tanks; total capacity, 294,000 tons; tanks very close together and not properly insulated by trenches.

Gasoline and kerosene: Two 4,000-ton steel tanks; twelve 1,000-ton steel tanks; total tankage, 20,000 tons.

Miscellaneous.—Fifteen small tanks used in connection with distilleries and refineries.

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8. *Fuel-oil situation.*

At a meeting of the budget committee of the Diet recently, the Navy Minister made the following statement concerning the fuel-oil situation:

For some time the public has been worrying over the question of crude petroleum, especially in view of its great necessity for the navy. However, as a result of the Japanese-Russian negotiations Japan acquired oil-field concessions in North Saghalien, from which it now gets from 40,000 to 50,000 tons per year, with a bright prospect of obtaining 100,000 tons per year in the near future.

We are also making an earnest study of the question of substitutes. The experiments for obtaining crude petroleum from oil shale at Fushun is progressing satisfactorily. There is a good prospect to make it pay, and we have hopes of getting from 20,000 to 30,000 tons per year within a short time. The ratio of oil in this shale is very high, and I am under the impression that it will not be difficult to make it a practical success, but that question can not be fully determined at present.

The present crude petroleum is purchased from Borneo and America. Shipment is made from Tarakan in Borneo, while from the United States shipment is made from San Pedro, near Los Angeles.

As I have repeatedly explained, our navy has no anxiety on the question of fuel oil.

NOTE.—Attention is invited to the necessity which Japan has of importing all of her oil. The assurance of a foreign oil supply is a vital necessity to her.—ED.

9. Order for radio set placed in Germany.

The Japanese Government has ordered from Germany a 500-kilowatt Telefunken radio set. This equipment has been purchased on the "reparations account," whereby it is to be paid for in full by the German Government, the amount to be deducted from Japanese claims against the German Government. The German Government has applied its own priority to this order, giving immediate delivery.

B. AERONAUTICAL

1. Mitsubishi manufacture of British engines.

It appears that the Mitsubishi Co. has purchased the manufacturing rights for the Jaguar, Lynx, and Mongoose air-cooled motors and will manufacture these engines at their plant in Nagoya.

It is very probable that the navy is contemplating the use of these engines. Otherwise, it seems doubtful that the Mitsubishi Co. would have gone to the considerable expense involved.

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2. Competition for army service model planes.

The army air service, in order to select a new model reconnaissance plane, will hold a competitive contest in November of this year. The following Japanese companies will submit a plane for this competition: Nakajima Co., Mitsubishi Co., Ishikawajima Co., and the Kawasaki Dockyards Co.

For this competition the Nakajima Co. will submit a plane to be designed by some French airplane engineer, and have already entered into negotiations for employing such an engineer. The Mitsubishi Co. will enter a plane similar to the one now in use by the navy. The Ishikawajima Co. now has a German engineer, formerly of the Albatros Works, so it is presumed some form of German design will be submitted. The Kawasaki Dockyards Co. will submit some form of a Dornier plane.

The four companies noted above will also enter planes for competition for selection of a model fighting plane. The designs for this plane must be in by June of this year and the planes themselves ready by December.

It will be recalled that in 1926 competitions were held by the army air service for day bombers and night bombers. As a result of this competition the Mitsubishi model was provisionally selected for the former and the Dornier for the latter. Neither of these planes have given complete satisfaction, and it seems probable that further competition will be held.

The competitions referred to above are of considerable interest, inasmuch as they mark a new policy in army aircraft building. In the first place, it marks the end of French supremacy in the army air service, as previously army machines have been entirely French, being either purchased in France or manufactured under license in Japan. In the second place, it is an attempt to secure a Japanese-made plane, strictly up to date, and not an obsolescent pattern from a foreign country. Although all four of the companies mentioned will actually have planes designed by foreigners, they will be called Japanese make.

It will be noted that two of the companies mentioned, Kawasaki and Ishikawajima, will have planes of German design.

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3. Aeronautical notes.

AVIATION TRAINING FOR CADETS OF MILITARY ACADEMY

With a desire to emulate the example set by the United States Army, the Japanese military authorities have commenced agitation to give all officers of the army flying training for about 10 hours a year. However, financial conditions in Japan will not permit of any such extensive program; consequently it has been recommended to the War Office that all cadets at the Military Academy be given at least five hours' training in flying every year at army flying schools and at air regiments. It is proposed to make this instruction compulsory for all students. This course of training will not entail any great outlay of money, and is possible of consummation, whereas to give such training to all army officers is financially impossible. No decision as to the institution of this training has yet been made by the War Office.

MAJOR GENERAL NOBILE, OF ITALY, ARRIVES

Maj. Gen. Umberto Nobile, of the Italian air fleet and director of the Italian airship factory at Rome, has arrived at Yokohama for the purpose of supervising the erection of the *N–3* dirigible recently purchased by the Japanese Navy from Italy. A party of six engineers and mechanics from Italy arrived in Japan on January 8 to assist General Nobile. Work on assembling and setting up of this dirigible was started at the naval air station at Kasumigaura on January 13 and it is expected that the ship will be in commission by the end of March. The specifications of the *N–3* as published in the press are as follows:

(*a*) Semirigid dirigible of the same type as the *N–2* employed by Captain Amundsen on his Arctic flight last year.

(*b*) Length of envelope, 270 feet.

(*c*) Engines, 2 Maybach, of 245 horsepower each.

(*d*) Speed, 62 miles an hour.

(*e*) Endurance, 15 hours at full speed.

(*f*) Crew and passenger capacity: It can accommodate 20 to 30 passengers, but the normal crew is 7 or 8 men.

(*g*) Special features: Rigid structure or framework surmounted by a nonrigid envelope; gondolas attached to envelope.

After the assembling of the dirigible, Gen. Umberto Nobile and his party expect to remain in Japan for six months for the purpose of training Japanese officers in the method of operating the ship and for the purpose of submitting designs of dirigibles for construction locally.

NEW TYPES OF LOCAL PLANES

(*a*) The Ozaka Kainichi of January 12 reports that the Aichi Tokai Denki Kaisha of Nagoya has completed an experimental reconnaissance seaplane of its 1925 type. The design of this plane was developed by the late Lieutenant Commander Akaishi, of the navy, who was recently killed in an airplane accident. The plane is a biplane with a 400-horsepower Lorraine engine. It is to be tried out by the navy.

(*b*) The Miyako of January 22 reports that the Nozawa Works at Tachikawa in Tokyo has completed the manufacture of a bomb-dropping ground plane for the Seventh Regiment at Mikatagahara.

(*c*) The Tokorozawa School has recently succeeded in devising a special sled for use by airplanes in making flights over snow-covered districts. The first experiments with the new device were completed at Somori on January 24 by a fighting plane equipped with this sled. The results were declared successful, the gliding operations in both starting up and in landing being very much facilitated.

AIRCRAFT ON SUBMARINE

The January, 1927, number of the Hikokai Magazine states that the Japanese Navy has decided to equip each of their large submarines with a small folding seaplane. The plane is reported to be so constructed that it can be put together by two men in 10 minutes.

NUMBERING OF NAVY AIRCRAFT

In connection with the system of numbering naval aircraft adopted on August 1, 1926, it is reported that the station of the plane will also be indicated by prefixing one of the following designations thereto:

Aircraft from aircraft carrier Wakamiya	I
Aircraft from Kasumigaura air force	Ho
Aircraft from Yokosuka air force	He

Aircraft from Omura air force ..... Ni
Aircraft from Sasebo air force ..... Ye
Aircraft from Hiro detachment ..... Ka
Aircraft from aircraft carrier Hosho ..... Sa
Aircraft from aircraft carrier Kaga ..... Wo

Thus, a combat plane from the aircraft carrier *Wakamiya* would be designated *I–210* or *L–210*, etc.

NAVY BOMBING AND TORPEDO PRACTICE GROUNDS

After preliminary investigations by the engineers, the naval authorities at the Kasumigaura Aviation Corps have come to an agreement to establish a new aero-bombing and aero-torpedoing practice ground at Niashima on the coast of the Kashima-nada.

For the past three months the authorities have been making efforts to find a suitable district for the establishment of an aero-bombing practice ground for the Kasumigaura Aviation Corps, as the old provisional ground so far used for the purpose near the Lake Kasumigaura was found quite unfit for such a practice on a practical scale.

The new ground is situated at the delta of Hiishima at the mouth of the Tone River on the coast of the Kashima Bay and is regarded as the most ideal place for the proposed service.

A completely provided landing place is now under construction at the delta and when it is completed aero-bombing and aero-fish torpedoing operations with actually loaded shells will be started by the aviation corps with wooden and dummy planes floated on the water as targets.

AIRPLANE PROPELLER PRODUCED AT HIRO NAVY WORKS

The Hiro aircraft branch of the Kure Navy Yard has produced a propeller for airplanes which is now undergoing tests. The propeller is being tested on a 1925 seaplane equipped with a 400-horsepower Lorraine engine. This propeller is to be compared for tractive power and durability with the French-make propeller and the propeller produced at the Yokosuka Navy Yard, with the hope that it will be superior to the French-made one, and thus make it possible for this item of airplane construction to be produced locally.

NAVY AERO-BOMBING PRACTICE

Navy aero-bombing practice, to continue for nearly three weeks, was started on the 10th instant at Oppama by the Yokosuka Aero Corps on the largest scale ever adopted in this country.

About 50 seaplanes of the Hansa F–5 and other types are employed for the exercise with targets fixed upon water. The feature

of the practice lies in the test of the specially invented airplane bombs and of the recently devised bomb throwing for installation in flying machines.

FATALITY

Captain Kojima, of the First Aviation Regiment of Kagamigahara, while operating an A–4 combat plane (No. 508), experienced trouble with the plane, which fell, killing him instantly. The plane was totally wrecked.

4. Review of civil-aviation situation at end of 1926.

The newspaper Hochi of Tokyo in its issue of January 5, 1927, published a very interesting review of the civil-aviation situation in Japan as it existed at the beginning of the year 1927. All the facts contained therein have been published from time to time; however, the article in the Hochi is believed to be of interest because of its purely civilian-Japanese point of view. The following is a translation of this article:

Though, of course, far behind European and American powers in civil aviation, our country has made considerable advancement in making use of aviation for practical purposes. In April of the fiscal year 1925–26 the Government caused the Osaka-Imaharu air-mail route to be extended to Oita. This line is one of the three regular Government-owned air-mail routes, the others being the Tokyo-Osaka route and the Osaka-Fukuoka route. On each of these routes mail has been regularly carried both ways three times a week. In addition the Tokyo-Sendai route was opened with service out and back once a week. Flying over these routes has become more certain and safe, for the results of the past year show that more than 80 per cent of the scheduled flights were accomplished on these lines. Last August airways were opened in the Hokkaido, where aviation has been comparatively backward, culminating in the establishment of a regular air-mail service between Sapporo and Ashigawa.

The same fiscal year saw the carrying out of pioneer flying between Japan and Dairen and between Japan and Saghalien and Shanghai. It is worthy of special mention that these experiments gave us valuable experience for future flights, looking toward connecting our country with Manchuria and China.

Next, when we glance over our aircraft-making interests, we find that steady, sound progress is being made with the years. The only regret, however, is that these interests are under economic limitations on account of the fact that our civil air service is not developed to the extent of making large demands upon these interests. Consequently, no remarkable activity has yet been displayed in this direction. However, all concerned are intent upon raising the local manufacturing skill as to airplane bodies, engines, and parts up to the European and American levels. Though the advancement of the manufacturing skill is a great thing, still it is of supreme importance to try and make Japanese airplanes of a type most suited to our country, which has special features in geographic, economic, and other conditions, naturally different from those prevailing in Europe and America. Therefore, with a view to urging a tendency toward this end, the Government, last August, invited the submission of designs

of airplanes intended for carrying mail and parcels, offering prizes in money for successful designs. Answers came in to a number that was several times as large as was expected. Moreover, the designs submitted were mostly by aeronautical specialists. Of the prize-winning designs, the best are going to be adopted for construction of experimental machines which will be given practical tests.

Under the existing circumstances, the most urgent business of the moment is the equipment of airways to insure safe aviation and the creation of an air transport company that can carry on efficient regular service by utilizing such equipment. It is true that the importance of equipping airways has long been recognized in our country and that the Government has formed plans therefor a number of times. But, to our regret, this matter is not yet accomplished, due to various reasons. The establishment of airways involves a vast outlay of money. Moreover, if the aviation company operating on these lines is not on an adequately efficient and solid basis, it will be utterly impossible to accomplish the object in view. From various angles the Government has planned the establishment of airways, local and international, and the formation of a competent air transport company and is pushing forward with preparations for the consummation of these schemes.

At the same time the Government is steadily making preparations to enforce the law of aviation, which was promulgated some years ago, in order to insure a full development of the civil-aviation world by properly controlling and promoting civilian aviation which has effected considerable progress in recent years.

C. MISCELLANEOUS

1. Failure of project to recover helium.

The naval authorities now admit that the project of obtaining helium at the Ashiya Hot Springs in Fukui Ken is a failure. There is quoted below an article on this subject which appeared in the Japanese press recently:

The helium gathered by the naval engineers from Ashiwara Hot Springs in Fukui Prefecture for experimental purposes has proved a complete failure, according to the latest dispatch from Tsuchiura, in spite of the singularly optimistic report hitherto made about the gas prospects by those experts sent out for investigation.

For the past many years the authorities at Kasumigaura have been employing their special efforts for collection of helium for use as a dirigible gas. However, the gases supposed to contain helium and gathered from different hot springs in the country were found to contain too little quantity of helium to serve any practical end, until the authorities succeeded in collecting such gases from Ashiya Springs, known commonly as Ashiwara Springs, when the experiment revealed that the gases gathered from there contain profuse helium but in such a condition as can not be employed for practical purposes unless a more complete success is made in the art of freeing helium from spring gases.

The authorities have accordingly decided to devote their efforts to the above-described research while making further attempt to gather gases from other hot springs.

NOTE.—The attempt to acquire helium from the above source was previously reported in the BULLETIN.—ED.

2. *Trend of events in chemical warfare among great powers.*

The January, 1927, issue of the Gunji, a military magazine published in Tokyo, contains the following editorial article on the trend of events in chemical warfare among the great powers.

THE TREND OF EVENTS IN CHEMICAL WARFARE AMONG THE GREAT POWERS

The United States.—Considering that it would jeopardize the Nation's safety to neglect to study chemical warfare through placing confidence in the treaty prohibiting the use of poison gas in war, the officials and civilians of the United States are whole-heartedly making research into this subject. The reasons advanced in support of this are that poison gas is a most efficacious weapon, with characteristics which permit of its being used in war by means of hastily constructed and improvised methods, and that nations which are not signatories to the gas treaty would thus, in a war with the United Sates, have a powerful weapon against which the United Statues would be unprepared. The present appearances are that the United States has far and away surpassed Great Britain in chemical-warfare research.

Great Britain.—Believing that the future must be planned for, and, more importantly, that poison gas, which will have the principal rôle in future wars, must be thoroughly understood, Great Britain is exerting the most strenuous efforts in research into chemical warfare. This nation believes that chemical warfare will be the principal weapon in wars in the future. It anticipates that the use of chemical warfare will not be confined to the degree to which it had attained in the World War—that is, use confined to attacking the enemy through gas masks. Great Britain thinks that chemical warfare will develop and be used in many terrible ways in war and is exerting herself to devise and discover various original methods for the use of this powerful weapon.

France.—In 1915 there was established in the French War Department a chemical-warfare section. This section was composed of some 10 chemists with additional personnel attached. During the World War it was the organ which met the great demands for chemical research and material. After the war the army, firmly convinced that the fate of nations in future wars will be determined by gas warfare, established in the war department a chemical-warfare committee. This committee has been secretly engaged in chemical-warfare research since its establishment. At present a law which has for its purpose the enlarging of this committee to include influential and prominent civilians is under deliberation.

However, even though conditions in France at present appear to preclude any large expenditure for chemical-warfare research due to the financial condition of the country which makes it unable to bear such expense in view of the money being spent for a rapid creation of a large air force, still, gas masks have been issued universally to the army and training in the methods of gas warfare is in full swing.

Italy.—During the World War there were practically no establishments in Italy for the supplying of chemical-warfare weapons and materials. This nation depended mainly upon the French Army for these supplies during the war. The argument that the only tactics of future wars will be the tactics of gas warfare has gradually gained ground in Italy, and this subject is now being energetically studied in the chemical-warfare research institution of that country.

Russia.—In view of the experiences of the World War, Russia has insistently advocated, since about the year 1921, that battles of the future can only be decided with aircraft and chemical weapons. In accordance with this belief, this nation has set up in the war department a poison-gas research institution and a school for instruction in chemical warfare. Further, Russia has established a chemical-warfare encouragement society and is endeavoring through this organ to propagandize chemical warfare on a nation-wide scale and to encourage the expansion of the chemical industries of the nation.

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3. Political review.

[Source: M. I. D.]

FOREIGN INFLUENCES IN INTERNAL POLITICS

The influence of training abroad or by foreigners on the Japanese people, and statesmen in particular, is very marked and usually reflects to the advantage of the country giving the training. This has worked to the benefit of pro-British and pro-American influence in general. The great importance of American trade also undoubtedly influences the political attitude of Japan toward America and will always be a restraining influence on any tendency toward antagonism. Over 40 per cent of Japan's exports go to America.

BEARING OF INTERNAL POLITICAL SITUATION ON INTERNATIONAL RELATIONS AND ISSUES

The Japanese Imperial Government is strong enough so that international relations do not suffer from frequent changes in the internal political situation. The most important concern to America is whether the Japanese administration tends toward liberalism or militarism. At present there has been a decided change in the former attitude of aggression toward China. Friendliness seems now to be the dominant keynote. The 1923–24 Chinese boycott of Japanese goods made Japan realize that there is an increasing nationalistic spirit among the Chinese against foreign aggressive measures. There is also a growing realization on the part of Japan that the white nations of the world are unwilling to forget race distinction.

FOREIGN POLICIES AND RELATIONS

a. General aims, important policies or doctrines.—The Japanese are thoroughly imbued with the idea that Japan must expand beyond her home borders to secure room for her surplus population and to provide an independence in resources which can make her a truly powerful nation. The Japanese have developed a racial pride which calls for leadership among the Asiatics and equal opportunity with Europeans wherever they can assert these principles. Japan's

policy toward China proper contemplates an amount of economic and political control sufficient to insure uninterrupted supply of certain raw materials at all times and under all conditions, and toward Manchuria an attempt to dominate, both politically and economically, to a degree sufficient to exclude any other nation from that territory.

b. Relations of other important powers—Alliances and ententes—Recent treaties.—The Washington conference marked a new era in Japan's foreign relations. Since then there has been a marked change in the method employed in the pursuance of Japan's policies on the Asiatic mainland, particularly in regard to China, where duress has been replaced by cooperation and the cultivation of friendliness between the two nations. At the same time Japan's economic control of the mineral reserves and the textile industries in China has been greatly strengthened and to-day are valued at about $1,000,000,000.

The important recent treaties and alliances to which Japan is signatory may briefly be listed as:

French-Japanese treaty in regard to the Continent of Asia (June, 1907).

Five-power naval treaty (1922).

Five-power submarine and poison-gas treaty (1922).

Four-power Pacific pact (with two supplementary treaties) (1922).

Nine-power open-door treaty concerning China (1922).

Nine-power tariff treaty concerning China (1922).

Russo-Japanese treaty (January, 1925).

N. B.—All but the first and last of the above-mentioned treaties were signed at the Washington conference.

c. General international political situation.—The important phases of the international situation in which Japan is playing a part primarily center about China, the United States, and Russia.

China.—The outstanding relations between China and Japan to-day center about the complex question of foreign treaty rights and special privileges on which China is fighting all the so-called Pacific powers. Japan participated in the ill-fated customs conference of 1926 and was represented on the commision which reported (September, 1926) on the question of extraterritoriality. At present she stands with the powers in her willingness to resume the customs conference with a view to granting China tariff autonomy as soon as possible and in the relinquishment of extraterritorial privileges as soon as China can herself afford adequate justice to Japenese residing there. With Great Britain, Italy, France, and the United

States, she is insisting upon the right to land forces on Chinese soil for the protection of the life and property of her citizens when Chinese protection is insufficient or withheld, and at present has naval vessels with marines at Shanghai, where foreign lives and property are likely to be endangered. Japan is also attempting to negotiate a new commercial treaty to replace the one denounced by China in October, 1926. She has had informal negotiations both with the Peking and the Nationalist Governments. A weak, divided China has always been to Japan's advantage, however, so she will never favor unification. New railway expansion in Manchuria has recently caused Japan alarm. The Chinese are planning to build a line from Kirin to Hailung, which, when completed, will give them an all-Chinese route parallel to the South Manchuria Railway. Japan is claiming that this line can not be built without her consent, probably basing this claim on the conditions of the Nishihara loans. The Chinese, on the other hand, state that these conditions were included in a secret pact between the two countries which has never been published, and therefore, in accordance with the provisions of the Washington conference, must be regarded as invalid.

The United States.—Toward America, at the present time, Japan appears assiduously to be cultivating a feeling of friendliness. The Japanese consuls and diplomatic officers have been specifically instructed to direct their efforts to this end. Unless there is a great internal upheaval in Japan, the Government is unlikely to reopen the immigration question for some years to come, although at the formal opening of the present session of the Diet the Foreign Minister stated that Japan still felt the sting of the exclusion act and looked hopefully toward future changes or adjustments. This will not be initiated by Japan in the near future, however, for her present economic depression does not present convincing reasons for her cultivating the ill will of her best trade customer.

Russia.—In January, 1925, Japan signed a treaty with Russia recognizing her politically. It was heralded as the first step in a happy rapprochement, both political and economic. Since that date, however, the breach between the two nations has only become wider. Reports indicate that Soviet agents have secretly been aiding the Japanese radicals and Bolshevists and helping them to win fresh converts to their cause, and, economically, the two nations' interests clash in North Manchuria even more severely than they do in the political realm. For some months Japan has been negotiating with Russia for timber concessions in Siberia, and for a settlement in her favor of the fishery question, allowing her to fish in Russian waters. But so far these negotiations have borne no definite fruits. The

oil concessions in northern Saghalien granted Japan by Russia over American claims held by the Sinclair Oil Co. have not as yet been worked to any appreciable degree.

NETHERLANDS

A. NAVAL

Accident to the Dutch submarine K–XIII.

The following is taken from the daily paper Telegraaf, Amsterdam:

A NARROW ESCAPE FOR THE SUBMARINE K–XIII

Batavia, February 18: Whilst oscillation (pendulum) vibration tests were being carried out on the *K–XIII* near Christmas Island last week, the boat lost its equilibrium at a depth of 120 feet and rapidly sank to a depth of 240 feet, while the submerging limit is only 180 feet. The frames creaked under the pressure. An attempt was made to get the vessel on an even keel by blowing out a tank in the afterpart of the boat, but this attempt failed, as the pressure was only equal to six atmospheres. The large tank in the forepart of the vessel was then opened and equilibrium was quickly restored and the vessel rose to a depth of 90 feet.

It was due to the coolness and presence of mind of the commander and crew that the boat was saved. The accident was probably caused by the insufficient closing of the torpedo tube valve, in consequence of which water entered. The commander of the fleet has ordered a court of inquiry to be held.

The *K–XIII* has made a record voyage of 20,000 knots in 196 days.

It will be recalled that the *K–XIII* left Nieuwediep on May 27, 1926, for the Indies via the Panama Canal, San Francisco, and Honolulu, with Dr. Venig Meinsz on board, who intended to make certain scientific observations. He was very pleased with the results obtained on the journey, as a number of facts of great importance were brought to light. The *K–XIII* arrived at Soerabaya on December 13, exactly the day set on the itinerary.

The *K–XIII* made a number of trips in Indies waters since then for the purpose of making scientific observations.

The following is quoted from the daily paper Vaderland, The Hague:

The officer in command of the naval forces in the Dutch East Indies has replied by cable to the request for information cabled by the Minister of Marine, a. i., to the effect that in the course of navigation, while submerged for the instruction of inexperienced native seamen, a wrong manipulation took place, owing to which too much water entered into one of the auxiliary tanks in the bow. As a consequence of this the vessel lost its equilibrium and, with a list, began to sink beyond its depth. Action was immediately taken, and by blowing two of the tanks empty the vessel was righted at 210 feet depth, after which it recovered its equilibrium.

Seeing that no leakages or defects were observed (nor was there any creaking of the frames), the submerged trip was continued. The boat did not suffer any damage.

B. AERONAUTICAL

Aviation budget, Dutch East Indies.

The following is the budget for new aviation construction for the Dutch East Indies for 1927:

	Florins
6 sea planes (boats)	800.000
6 bombing planes (2-float)	800.000
6 scouts (land)	300.000
Spare parts	200.000
Bombs	100.000

In addition, 12 seaplanes were provided for in the 1926 budget. The contract for these 12 planes and the 6 provided for in the 1927 budget was recently awarded to the Maatschappij moor Vliegtuigbouw Aviolanda (Aviolanda Company for Construction of Aircraft). The plant of this company is being made ready and the first plane should be delivered about September, 1927. The others are to be delivered during 1927–28.

The type of seaplane selected is the Dornier Wal, of the following specifications:

Two Lorraine Dietrich, 450-horsepower, reduction-geared engines.
Normal load, 4,717 pounds.
Maximum load, 5,952 pounds.
Maximum speed, 121.17 miles.
Fuel for 1,242.76 miles.

(There are already five of these planes in service in the Indies.)

The contract for the bombing and scout planes was given to the Fokker Co. One plane of each type is to be delivered in September, 1927, and, if successful after trial in the Indies, the others will be built.

Both planes are new types to meet the following requirements:

6 Fokker bombing seaplanes (2 floats), monoplanes.
Type T–IV.
Two Lorraine Dietrich, 450-horsepower, reduction-geared engines.
Normal load, 5,180.81 pounds.
Maximum speed, 102.53 miles.
Fuel for 621.38 miles.

6 Fokker land planes, monoplanes.
Type C–VII.
Air-cooled engine, 450 horsepower.
Two persons.
Three machine guns.
Maximum speed, 152.24 miles.
Climb to 16,400 feet in 20 minutes.

NOTE.—See the March BULLETIN for further Dutch East India aeronautical notes.—ED.

RUMANIA

A. NAVAL

Building plans of Rumanian Navy.

As regards to various plans in connection with the extension of the Rumanian fleet, it is difficult to say at present how much of same will be carried out. The fact is, however, that several orders have been given to Italian yards, the Pattison Yards in Naples constructing two destroyers of 1,800 tons each which will probably be delivered early in 1929, while a submarine and a mine layer are under construction at the Quarnero Yards in Fiume. Negotiations are also being carried on with Italian yards in connection with the construction of cruisers, the ships in question being apparently of about 5,000 tons. Probably these plans will be delayed on account of the lack of funds. The total cost of those orders already given runs up to about 8,000 million lei. In how far the English and especially the French will succeed in insuring their part of the Rumanian orders cannot be foreseen at the present time. France seems especially interested in selling as many of her old ships as possible to Rumania.

NOTE.—A list of the armament desires of the Rumanian Government was given in the February BULLETIN. Rumania is enabled to procure the above craft from Italy because of a recent Italian loan.—ED.

B. MISCELLANEOUS

Geographic information affecting the strategy of the country.

The Dniester River forming the boundary with Russia is a considerable obstacle. The Russians have a double-track railway line paralleling this boundary throughout. The Rumanians are restoring the Russian railways in Bessarabia, but the system is at best inferior to that on the Russian side. The River Pruth is regarded as the main line of defense on this frontier. Paralleling this as a third line is the Sereth. The country of Bessarabia included between the Dniester and the Pruth is mainly rolling with very poor earth roads, supply and movement over which are extremely difficult, especially in wet weather.

The Polish frontier affords no natural obstacles to invasion, the direction of which would probably follow the valley of the Pruth.

The Czechoslovakian frontier is unfavorable for invasion as it is protected by mountains except for a thin strip on the west. The most favorable route of invasion is toward Satmar.

The Hungarian frontier is open. The most favorable route of penetration is along the Maros Valley. The Carpathians or Transylvanian Alps bordering Transylvania bar the way to old Rumania.

On the Yugoslavian frontier the Transylvanian Alps and the Danube River are effective obstacles. The most favorable routes of invasion are (1) by way of Temesvar, thence to the Maros Valley; (2) from Turner-Severin, thence to Craiova. The latter route involves the crossing of the Danube, but avoids the necessity of crossing the Carpathian Range.

The Bulgarian frontier, except for the eastern third, is guarded by the Danube River. There is but one bridge—that at Cernavoda. Although the Bulgarian bank of the river is higher, marshes exist on the Rumanian side througout almost the entire course.

The most favorable route of invasion is through the Dobrudja where the country is open and the Bulgarians have a railway paralleling the frontier.

The Black Sea frontier is subject to blockade and possible invasion by any power dominating that sea.

Walachia and the Dobrudja are the most important geographical areas, comprising the most productive territory, including the capital and important railway center of Bucharest, as well as vital ports on the Black Sea.

INTERNATIONAL SITUATION

There is considerable disaffection among the minority populations of Bessarabia, Transylvania, Banat, Bucovina, and the Dobrudja.

Allied with Yugoslavia and Czechoslovakia in the Little Entente, Rumania is secure against aggression from Hungary. She is also allied with Poland against Russia. At present the attitude of Russia is threatening on account of the dispute over the retention of Bessarabia by Rumania. In the event of war with Russia, it is improbable that the Slavic nations of the Little Entente would mix in the struggle.

England's attitude is friendly, as is also that of Italy. France and Rumania have a treaty of peace, alliance, and friendship.

CONCLUSIONS

a. Rumania will not instigate war against any one.

b. She will assist Yugoslavia and Czechoslovakia in case of an unprovoked attack on either of them by Hungary.

c. She will assist Poland in case of war between that country and Russia and will assist France in case of a war of aggression against her by Germany.

d. In case of a Russian attack against Rumania, the Rumanian Army will probably fight a delaying action to the Pruth, where it

will establish a main line of resistance and endeavor to hold the Russians until the Poles and the French come to her assistance.

e. Nothing but border troubles may be expected with disarmed Bulgaria.

f. Border clashes with the Russians may be expected, due to Rumanian troops in the vicinity and Rumanian apprehension of Russian attack, together with the Russian policy of annoying the Rumanian along the border.

RUSSIA

A. NAVAL

1. Organization of Baltic fleets.

HIGH SEAS SQUADRON

(1) Yacht *Kretschet*—Flag of the commander of the Baltic Fleet: Muklewitsch.
(2) Battleship division—Flag of the commander: Morosow.
  (*a*) *Marat.*
  (*b*) *Parischkaja Kommuna.*
(3) Armored cruiser *International*—Commander: Schemichte.
(4) Light cruiser *Profintern*—Commander: Subalow.
(5) Gunboats: (*a*) *Krasnoje Snamja*, (*b*) *Trotzky*, (*c*) *Lenin*, (*d*) *Krasnaja Swesda.*

First destroyer division: *Engles, Lenin, Sinowjew, Stalin, Trotzky, Uritzky, Wolodarsky, Pamjat, Trjech, Eniminzew.*
Second destroyer division: *Swerew, Dmitriew, Artemjew, Martynow.*
Third torpedo boat d'vision: *Rochal, Lichoj, Legkij, Lowkij.*
Special destroyer division: *Karl Marx, Kalinin.*
Special Baltic submarine squadron: *Kommunist*, formerly *Swjatoj Georgij; Kommunar*, formerly *Tigr; Proletarij*, formerly *Smeja; Robotschij*, formerly *Jersch; Krasnoarmeez*, formerly *Leopard; Kommissar*, formerly *Pantera; Bolschewik*, formerly *Jaguar; Towarischt*, formerly *Tur; Batrak*, formerly *Wolk; Komsomolka*, formerly *Kassatka* (brought from the Caspian Sea); *Tscherwonnaja*, formerly *Okunj.*

With the exception of the *Tscherwonnaja and Komsomolka*, all the submarines are in good condition. Those which were built in the years 1916–17 were thoroughly overhauled in 1925, the electric motors being replaced by new ones. The overhaul work was done in the Baltic dockyard. The two last-mentioned submarines belong to the squadron, but on May 1, 1927, will be crossed from the list of the fleet, to be replaced by new ones which will be constructed at the Baltic yards in 1925–26 and will be ready about April, 1927, and will be put into commission about May 1.

COAST DEFENSE SQUADRON

Commander: Kunitzky

(1) Line ship *Res Publika*.
(2) Light cruiser *Aurora*.
Fourth destroyer division: *Gajdamak*, *Sladkow*, *Schelejjakow*, *Ussurietz*.
Fifth destroyer division: *Jakow Swerdlow*, *Rosa Luxemburg*.
Sixth destroyer division: *Krasnyj Don*, *Swododnyj Sabaikaletz*, *Steroguschtij*, *Straschnyj*.

All the vessels of the High Seas Fleet were reconditioned and overhauled in 1925 and are now in good condition, with the exception of the cruiser *International*, whose boilers are in bad condition. After the summer maneuvers in 1926, the last-mentioned cruiser had to be towed by the destroyer *Karl Marx*.

The condition of the ships belonging to the coast defense squadron leaves much to be desired; they often need repairs and can not undertake any long cruises.

At the present time the two battleships *Gangut* and *Poltawa* are under repair at the new Admiralty yards, new machinery being installed. The repairs should be finished April 1, 1927. All breakages have been repaired in 1925, but since there were no turbines on hand these ships have been unable to leave the yards.

The Baltic seaplanes can be divided into two groups:

(1) Seaplanes. Base: Cronstadt.

(2) Mixed squadrons consisting of seaplanes and land planes. Base: Lachta.

The organization of the seaplane division of the Baltic Fleet has been a source of much worry to the Red Navy Department; this is especially true of the period 1925–26.

At the present time, there are the following divisions and squadrons:

(1) Special seaplane squadrons for intelligence service (scouting work). Base: Former Fort Alexander III. Commander: Bach.
(2) Special seaplane squadron of the destroyers. Twenty-four machines: Fokker Morskoj (built in Russia). Base: Military harbors. Commander: Salzmann.
(3) Special bombing division Krasny Baltiez. Two machines built at Russian shops, as well as two "Sawoja T6" machines. Base: Cronstadt.
First division of special seaplanes. Ten Alexandrow machines built at the Moscow factory, Odwf.

II SQUADRON

Base: Lachta. Commander: Werejkin.

(1) Scouting squadron No. 9. Base: Lachta. Eight Junkers machines built in Russia.
(2) Scouting squadron No. 11. Base: Oranienbaum. Eight machines of the Handley-Page type.

(3) Scouting squadron No. 13. Base: Sestroretzk. Eight machines of Handley-Page type.
(4) Destroyer squadron No. 6. Base: Sestroretzk. Eight Fokker–AB–6 machines built in Russia.
(5) Destroyer squadron No. 7. Base: Oranienbaum. Eight Fokker machines built in Russia.
(6) Bombing squadron No. 1. Base: Lachta. Two Junkers machines.
(7) Bombing squadron No. 1A. Base: Lachta. Two Junkers machines.

A squadron consisting exclusively of machines of the Alexandrow type is under formation in Cronstadt since October, 1926.

The seaplanes of the Baltic Fleet are newer than those of the Black Sea Fleet. However, damage and breakdowns occur as often in the one case as the other, but the personnel is alone to blame. The Baltic Fleet has one airplane carrier, the airplane mother ship *Orlitza*, which can accommodate four planes. There are no more such ships in the Baltic Fleet.

NOTE.—The above is considered as leaving rather a too favorable impression of the Baltic Fleet. Like most Russian activities, it looks and sounds better on paper than afloat or in the air.—ED.

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2. Baltic naval bases.

The only bases of the Baltic Fleet are in Cronstadt and Leningrad. Both are bases of the first class, equipped to meet the requirements of the fleet. At Cronstadt, temporary repairs may be carried out; submarines only can be fully repaired. The repair shops were equipped in the years 1924, 1925, and 1926 by the Baltic yards In Cronstadt there was a base for a large squadron even before 1914; it was therefore only necessary for the Soviet Government to keep this up, without making any additions or alterations, considering that nothing has been destroyed here by the former allies such as occurred at Batum and Sevastopol. However, in Leningrad the base had to be newly equipped inasmuch as the Red Army administration counted on the possibility of the surrender of Cronstadt and a retreat of the naval forces to Leningrad.

Preparatory work is now being done on a large number of second-class bases, but this work is purely of a theoretical nature, it being assumed that the Island of Worms could be occupied by the Red Fleet immediately after the outbreak of hostilities; in such a case, fuel bases for torpedo boats and submarines would be set up there. As far as submarine bases are concerned, the Soviet Admirality evidences the greatest possible energy. According to the latter's plans, the submarine operations will extend over an extraordinarily extensive territory; however, the condition of these vessels is not such as to permit a long cruise without repairs being made. For such repair work there are two floating bases. The duties of such floating bases are to set up fuel stores on the above-mentioned island

as soon as the latter is occupied. Among other things, the summer maneuvers of 1926 consisted in having the High Seas Squadron, together with the assistance of the above-mentioned transport ships, supply the submarines which were guarding the coasts with fuel while underway.

The control committee attached to the staff of the commander of the Baltic has made the following report on December 1, 1926, regarding the condition of the ships (that is, as regards their speed and military readiness):

Marat; 19 knots; in battle condition.
Paris Kommune; 19 knots; in battle condition (motors in forward turret in need of repair).
International; armored cruiser; 10 knots; not in battle condition (boilers in need of repair).
Profintern; light cruiser; 28 knots; in battle condition.
Lenin and *Trotzki;* gunboats; 10 knots; the committee is of the opinion that both these gunboats should be transferred to the coast defense squadron.

The condition of the torpedo boats of the First and Second Divisions is characterized as admirable. The torpedo boats of the Third Division are in need of repairs. The other vessels of the squadron were not inspected by the committee.

At the present time the following ships are being overhauled and conditioned:

Line ships *Gangut* and *Poltawa*, at the yards of the new admiralty. This work has been under way since 1925 and is not yet finished. However, it was almost completed on December 15, 1926, so that on April 1 of this year the two ships can be added to the coast defense squadron (their machinery is in very bad condition). The armored cruiser *International* is undergoing thorough overhaul at the Baltic yards. It is intended to replace the boilers with new ones. According to the reports, the boilers are only being cleaned and riveted. As a result, the *International* will be transferred to the coast defense squadron.

The torpedo boats of the Third Division, *Roschal*, *Lichoj*, *Legkij*, and *Lowkij*, have been sent to Leningrad in accordance with an order of the commander of the fleet (Muklewitsch) dated December 16, 1926. Upon arrival there, their machinery will undergo repair. The other ships are in the harbor of Cronstadt; during the course of the winter slight repair work will be carried out with the facilities available in the harbor. The ships will also be painted.

The land plane squadrons have been given orders to cooperate with the seaplanes. The main seaplane base is in Cronstadt, in the military harbor, where there are good repair facilities. The conditioning and overhauling of the motors are limited to replacing the damaged motor by new one. The actual repair work on the motors is done ex-

clusively at the Bolschewik Works (formerly the Obuchow Works). The Cronstadt seaplane base has also a school for aviators and mechanics destined exclusively for operations in the Baltic. A workshop of the second class has been opened in the former Fort Alexander III, where the plane can be repaired is so far as damaged parts are to be replaced by new ones.

SPAIN

A. NAVAL

Personnel organization.

A recent Diario Official of the Navy Department published a royal decree fixing the number of men to join the navy in 1927 at 5,298. These men constitute the "first group" of those in active service in accordance with the recruiting law of November 19, 1915.

The draft for 1927, which is drawn from all fit men enrolled in 1926, and the contingents contributed by the three naval departments follow:

	Departments			Total
	Ferrol	Cadiz	Cartagena	
Number of men registered and found fit for active service	8,356	3,987	5,971	18,314
Number of men contributed by each Department to join the Navy this year	2,417	1,154	1,727	5,298

B. MISCELLANEOUS

1. Political review.

[Source: M. I. D.]

(A) IMPORTANT POLITICAL ISSUES

The chief political issues affecting the internal life of Spain at the present time are: The Moroccan question; the balancing of the budget; separatism; socialism, syndicalism, and communism; the return to constitutional government.

The important question of the church, and its maintenance and support, is not mentioned as an "issue," for this matter does not seem to be an issue. The present arrangement of an official State religion seems satisfactory to the people who as a rule are very devoted Catholics. Another "issue" of a similar nature is the large military organization that is kept up by Spain. It is frequently

stated that the church and the army are the greatest burden this country has to bear.

For centuries Spain has had wars with the Moors in northern Africa. Since the establishment of her protectorate as a result of the Algeciras conference in 1906, and her efforts to civilize the recalcitrant tribes of the rough strip of territory intrusted to her, this warfare has assumed such proportions as to become a very debilitating drain upon the finances and the young manhood of the nation. Morocco is the chief cause of the yearly deficit, and ever since 1909 Spain's armies have suffered many casualties in their battles with the hard-fighting tribesmen. Under the vigorous military campaign waged in Morocco during the past year much has been accomplished. Practically all of the Riff has been subjugated and the tribes disarmed. A new policy of employing native troops officered by Spaniards in place of regular peninsular forces seems to be producing excellent results. Although little reduction in the budget is effected by this policy, it is producing greater satisfaction in the Peninsula as the young manhood of Spain is not now forced to combat a fierce foe for doubtful gain.

The question of the deficit in the budget, while it may be more of an economic than a political one, is a national problem which is giving the present Government much concern. For several years it has amounted to about 1,000,000,000 pesetas annually, but it was reduced to about 500,000,000 in 1926 and the Government hopes to reduce it further in 1927. The Government is making efforts to economize in running the country and to eliminate graft in the collection of revenues, and is having some measure of success in the latter.

Separatism has been manifest in Cataluna for many years. When the directorate came into power, the display of the Catalan flag was prohibited and the use of the Catalan language forbidden for official purposes, and generally restricted. This caused much discontent at first and is said to have increased rather than to have diminished separatist sentiment. The sound business men of Cataluna, especially the manufacturers whose chief market is found in the other regions of Spain, are not seriously in favor of separation. A noisy minority has attracted much attention to this subject, but the Government has continued its strict policy of repressing all outward signs of separatism.

Socialism has made considerable progress in Spain during recent years, as has the syndicalist-communist movement, which is strongest in the great industrial centers of Cataluna. Prior to the advent of the directorate strikes were numerous in Barcelona and riots and

assassinations were quite common. Now things are very quiet; disorder is practically unknown, and strikes are infrequent. Some say that these radical tendencies are merely sleeping, not dead; that they still exist as strongly as before, but can not manifest themselves because of the strict press censorship and the strong and quick arm of the Government, and that they will be awake and bestir themselves when opportunity offers. This may be true.

The return to constitutional government is strongly advocated by the majority of the press and the old politicians, but the country at large shows little interest in the subject. The Government is not inclined to recommend the assemblage of the Cortes following a general election. However, steps are being taken to resume constitutional life by degrees and an assembly of representatives, appointed by the Government to cooperate with it in legislative matters, is being considered. The Union Patriotica party, created by Primo de Rivera and which already has participation in the cabinet, will supply the majority of the members of the assembly, from which the old political parties will be excluded. The Government claims that every activity of the nation will be duly represented.

(B) FOREIGN INFLUENCES IN INTERNAL POLITICS

During the nineteenth century foreign influences played a great part in the internal politics of Spain, even to the placing for a brief time of a Frenchman, Joseph Bonaparte, on the Spanish throne. The Napoleonic wars made Spain the battle field for British and French as well as for Spanish armies, and as late as 1823 French armies overran Spain in support of the reactionary elements. The Spaniards seem never to have forgotten or forgiven these French invasions, and they still retain a hearty dislike for the French. Spain's position with the former colonies, the Spanish-American republics, is a matter in which the mother country always takes a keen interest, and this influences to some extent her internal politics with reference to emigration, establishment of educational facilities devoted to Hispano-American subjects, etc. But at present the foreign influence in Spain's political affairs seems to be slight. The Church of Rome exercises a great influence, of course, but that can be hardly classed as foreign.

(C) FOREIGN POLICIES AND RELATIONS

General aims; important policies or doctrines.—Spain's foreign policies may be said to center around Morocco and Spanish America. Her Moroccan protectorate occupies much more attention than her other possessions in Africa.

Upon the overthrow of Abd-el-Krim and subjugation of the Riff, Spain made definite claims to Tangier, giving as the basis for these claims the following: That Tangier is naturally a part of Morocco, and that for complete control and police of same it is essential that it belong to her. It was even intimated by the Government that Spain would relinquish the Moroccan protectorate if her desires in this matter were disregarded. The matter has not yet been decided, but there seems to be little hope of having her wishes gratified. With reference to Spanish America, Spain ardently desires to have a great cultural and spiritual influence in those countries and also to turn this influence to material advantage. Actual progress toward accomplishing these ends seems slow, although the flights of Spanish aviators to America and the Philippines are indicative of the efforts made. A great deal of oratory is put forth and much is written about the close ties that bind her daughter Republics to "Madre Espana," but in reality both France and Italy are making greater strides in Latin America than is Spain.

Following the refusal of the League of Nations in 1926 to admit Spain as a permanent member of its council, the Spanish Government withdrew its representative in the assembly. While the country has gained in international standing since the advent of the military directorate, her claims of recognition as a first-class power are either premature or have been presented at the wrong moment.

(D) RELATIONS TO OTHER IMPORTANT POWERS; ALLIANCES OR ENTENTES

Treaties.—Spain and France are on more friendly terms than they have been for a long time. A convention was negotiated in Madrid during the summer of 1925 between the two nations for cooperation in Morocco, the main object being the defeat of Abd-el-Krim, the leader of the Riffian rebellion. So far this joint action has worked very well, and the land and sea blockade has done much toward shutting off the flow of arms and munitions into the Riff.

Since the exchange of visits between the royal families of Italy and Spain, the two countries are supposed to have reached an accord as to their policies in Latin America, involving cooperation in question of emigration to and development of Spanish and Italian influence in those countries, their object being to impede the advance of the French along these lines.

Because of her geographical position commanding the entrance to the Mediterranean, Spain's cooperation is very important to Great Britain. Britain's influence no doubt had much to do with Spain being given a protectorate over the southern shores of the straits region, and also with preventing Tangier from passing under the control of France. Important trade considerations between Spain

and Great Britain, and also the fact that the Spanish queen was an English princess, make for close relations between the two countries.

In the last three years Spain negotiated commercial treaties with the following countries: Italy, Poland, Austria, United States, Sweden, Germany (modus vivendi), Japan (modus vivendi), Paraguay, Greece, Guatemala, France, Norway; and on October 30, 1926, the Hispano-American aerial navigation convention was signed.

In general, Spain's policy is to concede commercial treaties on a basis of barter. Under Spanish laws the Government is forbidden to grant concessions of more than 20 per cent below the minimum rate (second column) customs tariff now in force; there is a marked tendency to negotiate treaties subject to termination on three months' notice.

(E) GENERAL INTERNATIONAL POLITICAL SITUATION

Spain has no troublesome or controversial questions of importance with foreign powers. Her destinies do not seem to bring her into conflict with any other country. She counts upon a preferred position in the sentiments and affection of her daughter republics in the Americas. Her relations with both European and Asiatic powers seem to be very cordial. With reference to the United States, the past few years have seen a strengthening of the friendly relations which already existed. It is believed that Spain's general international situation is very satisfactory.

SWEDEN

A. NAVAL

Submarines "Draken" and "Gripen."

The Riksdag of 1924 decided to build two submarines at a cost of approximately 4,500,000 kroners each. Both these submarines, the *Draken* and the *Gripen*, are now under construction at Karlskrona. The *Draken* was launched October 20, 1926. The *Gripen* will probably be launched toward the end of the current year or during the beginning of 1928.

The type of these boats constitutes a development of the present *Baevern* type—the *Baevern*, completed in 1921, and the *Illern*, the *Uttern*, completed in 1922.

When constructing this new type of submarines the experience drawn from the last year's expeditions with boats of the *Baevern* type has been made use of. It has, however, been considered neces-

sary to change the torpedo armament of 18 inches, used up till now on Swedish submarines, and increase the same to 21 inches.

The artillery armanent will also be reinforced. With the introduction of the heavier torpedo and artillery armament an increase of the tonnage, compared with the *Baevern* type, has become necessary. The displacement when the boat is afloat will now probably be about 700 tons. The speed is intended to be about the same as that of the boats of the *Baevern* type, both above and under water. The radius of action has been somewhat increased and will probably reach about 6,000 miles at a speed of 10 knots.

B. AERONAUTICAL

Regulations governing the Swedish air forces.

Through the new Swedish home-defense regulations, the air force, as it will be known, was made a special independent arm of defense, and in the King's order in council of June 18, 1926, more detailed decisions were fixed for its organization, etc.

In order to give some idea of this regulation, without going too far into details, it is proposed to mention the principal contents of the King's order in council for the chief of the air force and for the aviation corps administration.

I

(1) The chief of the air force is directly under the authority of the King (in Sweden, the King has the power of direct command).

(2) He is chief of the personnel of the air force, both officers and noncommissioned officers, as well as of the civilian military personnel of the service groups corresponding thereto, both active and reserve personnel, and is held responsible that this personnel fulfills the duties laid upon it and enjoys the rights and privileges granted to it.

(3) He has supreme authority over the entire air defense and of the different aviation stations with the exception of those which are under the authority of the army or navy and with the limitations which arise out of the several local authorities' responsibilities in regard to the defense of forces and fortresses.

(4) The chief of the air force is in the same manner chief of the flying corps administration, about which special regulations have been issued.

II

(1) The chief of the air force is responsible to the King for the preparedness of the air force for war, and for its responsible maintenance.

(2) He shall inform the King of the country's military strength.

(3) He shall take measures to preserve discipline and order, as well as for the efficient carrying out of maneuvers.

(4) He shall attentively follow the development and progress of aviation not only in Sweden but also abroad, including land and sea strategical developments, especially in the application to the use of aerial combat forces and the cooperation with the land and sea combative forces.

III

This section treats of the relation of the chief of the air force to the recruiting of personnel, etc.

IV

This section treats of the duties of the chief of the air force with regard to the personnel subordinate to him. He shall accordingly endeavor to become acquainted with the individual staff under him, make proposals to the King in regard to the filling of more important posts, decide regarding the movements of troops, advance proposals for maneuvers, etc.

V

This section treats of the position of the chief of the air force with regard to maneuvers and training. Thus he shall direct the working out of proposals for regulations and instructions as well as educational books. In all questions concerning the Army and the Navy he has to confer with the Chief of the Admiralty and General Staff. He shall inspect the different schools and courses within this arm of the service. Furthermore, he shall, after closer contact with the authority concerned, follow the development of the maneuvers by the institutions of the air force which are in time of peace subordinate to the naval or military authorities.

VI

This section treats of the rights of the chief of the air force to change the service and the work of the personnel when this may be required.

VII

The chief of the air force has to make the following annual reports, suggestions, and information at the times designated:

(*a*) To the King—latest, December 15—annual report regarding the activities of the air force during the past year, including the

time from November 1 to October 31, especially regarding the experiences gained through the year. This report shall include information regarding the decrease and increase in the number of personnel.

(*b*) To the Minister of Defense—latest October 31—after conference with the Chief of the Admiralty and General Staff; offer suggestions for maneuvers during the coming year, as well as a résumé of the experiences already gained and reports from the subordinate authorities for the maneuvers during the past year.

VIII

This section treats of the service of the chief of staff.

IX

This contains regulations as to the procedure to be followed in the event of the chief of the air force being prevented from attending to his duties.

This regulation enters into effect July 1, 1926.

The King's order of June 18, 1926, states that the aviation administration has, under the King, the supreme administration of the air force both as regards technical and economic aspects. According to his instruction it is the duty of the aviation administration to fix the budgets and according to given instructions, to see to it that the air force is kept in fit condition commensurate with the appropriations, and fit application of same. All questions concerning personnel, appointments, promotions, retirements and training, organization of the air force, as well as mobilization, come within the aviation administration board.

TURKEY

A. NAVAL

1. Launching of submarine.

The first one of the two submarines being built at Rotterdam for the Turkish Navy was launched on January 29, 1927. The Feijenoord shipbuilding plant is building the boats.

The chief of the Turkish naval staff, Hussameddin Bey, who is also Underminister of War, was present at the launching.

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2. Naval organization.

The responsibility for the naval establishment is divided between the Minister of Marine and the general staff. The former appears to

be responsible for the administration, training, and supply and the latter for operations, but the dividing line is not clear.

When the Turkish Republic was established practically all the leaders were, and still are, army officers, the one exception being Capt. Raouf Bey, of the navy, who distinguished himself while in command of the cruiser *Hamidieh* during the war with Bulgaria in 1912, who since then has figured prominently in several important military and political missions, was the first Prime Minister of the new Republic, and the only man considered strong and bold enough to compete with Mustapha Kemal as leader of the nation. Eventually he either honestly disagreed with the Government's policies or allowed his personal ambitions to get the better of him, and he became the leader of an opposition party. In the meantime the navy had not been a separate department but was a branch of the army general staff; and being an old institution with considerable tradition, they didn't approve of this arrangement. The opposition party became strong enough about two years ago to give the Government considerable concern, and it appears that the possibility of the navy's supporting Raouf Bey caused the Government to look about for some way to make them happier and to isolate them. It was then that the Ministry of Marine was formed, with a soldier, Ishan Bey, as minister, but the general staff was strong enough to prevent its escaping them entirely, and hence the dual control. Then, last spring, advantage was taken of an attempt to assassinate President Mustapha Kemal, to remove the opposition party completely. This was very simply accomplished by hanging enough of them to scare all the others out of the country. Raouf Bey was among the latter, and the tribunal of independence sentenced him to exile for life. Thus, there appears to be no further necessity for maintaining a separate Ministry of Marine, and it seems to have been decided to abolish it and place the navy back under the wing of the general staff, where the army thinks it properly belongs.

Little has been done for the navy since the war, and except for the submarines which are building in Holland and the half-hearted attempt to repair the *Yavouz*—now indefinitely postponed due to the collapse of the floating dry dock—there is nothing in sight for the future. In fact this latter incident is being used to illustrate the inefficiency of the Ministry of Marine and as an argument in favor of its abolishment. But for some reason the Government wishes to impress the people with its interest in the navy. A short cruise of two or three torpedo boats in the Sea of Marmara is the occasion for a column in the Government-controlled press, and the minister discourses on their efficiency. The army, on the other hand, whose budget is more than ten times that of the navy and

whose efficiency has improved tremendously during the past four years, is rarely mentioned in the papers.

There is only one officer with the rank of captain on active duty, and the senior officer afloat is a commander (lieutenant captain). The outlook must be discouraging for the naval personnel, but they continue their training with a spirit which shows an admirable morale.

SPECIAL ARTICLES

A. DEPORTMENT OF NAVAL OFFICERS WHILE TRAVELING ABROAD

Occasions not infrequently occur in which the activities of an officer of the Navy traveling abroad give rise to suspicions and misunderstandings on the part of foreign officials. Such incidents are largely due to ignorance on the part of the officer concerned of the correct formalities, but they are nevertheless embarrassing to our Government and service. It is intended to give below a few notes relative to this matter.

The Office of Naval Intelligence is very desirous that officers traveling abroad, whether on leave or whether under orders, should avail themselves of every opportunity during such travel of observing and reporting upon items of interest to the Office of Naval Intelligence, principally upon naval or military matters. Such officers often have unusual opportunities for making important observations and reports, as, for instance, when visiting ports or cities where our naval vessels do not touch or where there are no United States representatives or where important naval or military activities are continuously in progress. In many cases such officers have opportunities which would be denied a naval attaché or officers attached to a cruising vessel. Hence this office is desirous of impressing upon the service the potential value of every officer traveling abroad.

But in order to avoid the misunderstandings mentioned above it is essential for every officer traveling abroad to remember that he can not, even if he would, divest himself of his official status. He is an officer of the United States, whether traveling on leave or under orders or whether in uniform or in civilian clothes. Accordingly he must conduct himself with the propriety which becomes his office, and especially so when he is desirous of collecting information.

When an officer during the course of his travels on leave or under orders arrives at a foreign port or city, he is not required to call upon the United States consular or diplomatic representative resident therein nor upon the native civilian or military officials, solely because he happens to find himself in the city or port in question. But

the advisability of making such calls can not be overstressed, and it is strongly recommended that such calls be made, time permitting, because of the direct or indirect benefits which are apt to accrue to the Government, to the service, and to the officer personally. And it is wise to make these calls whether or not the officer has any desire to collect information. When the port is one in which the officer desires to inspect naval or other governmental activities, a call upon the United States naval attaché (if the city is a capital and an attaché is present) or upon the United States consular or diplomatic representatives is essential, both for the purpose of identifying himself and securing an introduction to the local officials and for acquiring information from the United States representative concerning the governmental activities in which the officer is interested. An officer should never endeavor to inspect any naval or military activity without first, through the good offices of the United States representative, having called upon the commanding officer of the activity concerned.

If the port or city visited is without any United States consular or diplomatic representatives, an officer would be perfectly justified in calling directly on the local officials and introducing himself.

There are, however, circumstances under which an officer can acquire valuable information without calls or introductions, as, for instance, when in entering a port his vessel passes close by a port or a naval station or a shipyard, or when during a tour of the city or port such as any traveler might make he can observe activities of interest. But if he wishes to go beyond the scope or the beaten path of the ordinary traveler in securing information then the calls and introductions above mentioned must be made.

The above formalities are expected from foreign officers visiting the United States, and it is necessary that our officers adhere to the established and courteous practice when traveling abroad.

B. THE STRATEGICAL SITUATION IN THE PACIFIC

By Capt. M. Hibinó, I. J. N.

[The following interesting article has been published in the Maritime Japan. The author has until recently been attached to the Naval General Staff, intelligence division, in charge of the American section. He was assistant naval attaché at Washington in 1921–22 and was a member of the Japanese delegation at the Washington Conference.

Captain Hibino is considered one of the ablest of the younger officers of the Japanese Navy. While the views expressed in the above report are his personal ones, it is not unlikely that they reflect to a considerable degree the prevailing Japanese naval opinion on the subjects discussed by him.]

THE RELATION BETWEEN INTERNATIONAL POLITICAL SITUATIONS AND ARMAMENTS

Armaments in general have for their purpose two objects: First, the maintenance of order at home, and second, the protection of the nation from outside attack.

The present mission of armaments is more for protection against outside attack than for the maintenance of order at home, as was the case in times past.

Therefore, while the armaments of different countries are largely governed by their geographical positions, extent of territories, population, resources, etc., they are also affected by the trend of the international political situation. That the armament competition of European nations moved from the North Sea to the Mediterranian and Atlantic and then to the Pacific is one of the examples.

The prime causes of the shifting of international situations are no longer the greed for territorial acquisition or conquest over other races, as was the case of old, but they can in the present day be attributed to questions involving economic expansion or questions bearing upon the existence of a nation. Every one knows that until the close of the World War the center of world affairs was in Europe, and it is true that delicate problems are yet to be solved between European countries. But no one can deny that the greatest questions of the world to-day are shifting gradually eastward. The eyes of the leading powers are now turned to the Far East and the Pacific.

An example illustrating the tendency mentioned is the fact that while the Versailles and London conferences were for the settlement of the European questions, the Washington conference of 1922 was for the discussion of problems of the Far East and the Pacific and naval questions relating thereto.

The change in the center of the world's affairs may be attributed to two causes: First, the rise and decline of national power, and second, changes in economic conditions.

The Great War reduced the so-called eight powerful nations to five. Of these, France and Italy, while they were counted as victorious nations, suffered in ways as much as the defeated. On the other hand, the national expansion of the United States and Japan was remarkable. It made England, the United States, and Japan the leading powers of the world. This was largely responsible for the shifting of the center of international affairs to the east.

The European markets which had been approaching the climax of development before the Great War were seriously affected by the war, and there is little expectation of their return to the economic supremacy of the past. On the other hand, in the Far East there is

China, with 400,000,000 population and 4,000,000 square miles of unexploited land, and Siberia, with vast resources scattered over 5,000,000 square miles. This certainly can not fail to draw the attention of the world's financiers and economists, and this is another cause for the moving of the center of world's affairs eastward.

When we look into the history of Europe, the principal points involved can invariably be traced to some nations' desire for the acquisition of territory and of control of the sea. Although the activities of the world powers in the Far East are based on the desire for economic gains, and the freedom of the sea in connection with the above, these aims are no different from those which have taken place in other parts of the world. But the scale is far, far greater. In other words, the powers are running amuck in the Pacific, rushing after the tempting baits which are there.

This state of affairs deeply concerns Japan, whose territory is restricted and overpopulated and whose resources are small. This strife to other nations may merely be a question of economic importance, but to Japan it is a question of life and death.

The objects of temptation in the Far East are facing the Pacific, and the countries most interested are working not from within Asia itself but from the Pacific Ocean. Therefore the far eastern problems are not merely those of the far eastern continent but are those of the Pacific as well; nay, it will be much more proper to say that the Pacific is the main stage for such problems.

In view of the above the question of international armament as it relates to the Far East and the Pacific is a question of naval armament. The nations that have the greatest economic interest in the Pacific are England, the United States, and Japan, and they are also the countries that have a naval armament more or less proportionate to their economic standards. Therefore we may say that the relative strength of the navies of these countries will ultimately control the international strategical status of the Pacific.

NAVAL POLICIES OF ENGLAND, UNITED STATES, AND JAPAN

In view of the facts above mentioned when we survey the naval policy which England, the United States, and Japan are adopting, how they are carrying it out, how they are strengthening their naval bases, how they are distributing their forces, and see, as a result, the strategical status these conditions are bringing about, an analysis of the facts appears to be as follows:

England.—England is the country which makes the supremacy of the seas her traditional motto, and in order to maintain this national policy she, until about 1908, made it her aim to have her naval strength exceed the combined naval strength of the two countries directly following her; this policy was known as the "Two-power

standard." Later, with the rapid expansion of the German Navy, it became difficult to maintain this standard, so she adopted the 60 per cent standard, that is, maintaining a naval strength over 60 per cent stronger than the naval power of the country coming next in strength.

Again, with the unprecedented expansion of the United States Navy during the World War, it became difficult for England to maintain even the 60 per cent standard, and she again changed it to "next to none" policy and agreed to the necessity for naval limitation. As the result of the Washington conference, she agreed that England and the United States should be of equal strength in capital ships and airplane carriers. However, England has extensive colonies in all parts of the world, and as she maintains the nation's life and industries by importation of supplies from abroad (in this respect we resemble her very much) it is not probable that she will be satisfied to remain equal to the United States in noncapital ships. She already possesses a strength far superior to any other country in noncapital ships, and she is increasing this superiority by her present cruiser program. She is also bending her utmost effort toward the improvement of her airplane and submarine strength.

As regards the distribution of her naval forces, it is to be noted that prior to the World War her main naval strength was concentrated near home in the Atlantic, but since the war she moved this concentration to the Mediterranean, and at the same time doubled her Asiatic fleet and greatly strengthened the Australian fleet. More recently she has organized the Indian fleet and has plainly indicated her intention of extending her naval strength eastward.

Regarding Great Britain's supply bases, she has already much enlarged the facilities at Malta, Suez, Aden, ando Colombo. Farther eastward, at Singapore, she is building a gigantic naval base to cost about $100,000,000.

United States.—From 1905, when President Roosevelt adopted the so-called new naval policy, down to 1915, the United States Navy ranked third, being next to the British and German Navies, and the aim of the United States during that period was to become second only to Great Britain in naval strength. However, the lesson learned by the fact that the German Navy, which ranked second, was obliged to remain almost inactive during the war against the superior British Navy convinced the United States that a second-rank navy is valueless from the viewpoint of national defense. Thus she changed her policy and in 1916 startled the world by announcing her intention of building the so-called "Navy second to none." When she joined the World War in 1917, in order to meet the activities of the German submarines, she concentrated her ef-

forts on the construction of destroyers and submarine chasers. This somewhat delayed the building of big ships, but after all she came into the possession of the strongest destroyer force in the world. After the close of the war the construction of capital ships was resumed, and by the time of the Washington conference about half of the 1916 capital-ship program was completed. In a few years more she would have realized the object which she was aiming at.

Prior to the Washington conference there were in the United States two opposite trends of public opinion. One favored the limitation of naval armaments for the betterment of the world. The other maintained that to do so now would be sacrificing the position of the United States as the first-class naval power, which position she would have attained in a few years. This faction further maintained that to sacrifice the ships partly built would amount to the United States paying the price of letting England maintain a position of equality. However, the Washington conference was called. As a result the limitation on capital ships and airplane carriers was agreed upon in the ratio of 5–5–3, and the United States thus attained her cherished "Navy second to none." She has ever since been bending her utmost efforts toward putting every ship and every naval establishment in the best of condition, with the view of bringing them up to the same ratio as was laid down for capital ships, laying special stress on strengthening her comparatively weak cruiser force. Thus a part of the eight 10,000-ton cruisers authorized by Congress in December, 1924, are now under construction. This program can be taken as merely a portion of the far larger program which is in the mind of her naval authorities.

In the improvement and extension of her air strength and other modern arms she is foremost in the world, especially so in the organization and extensive scale upon which researches in poison gas are being carried on. The five-year air program authorized in July, 1926, was enough to startle the world.

As regards the distribution of her naval forces she transferred her main naval strength to the Pacific soon after the war, and since the Washington conference she has organized a standing fleet known as the United States Fleet, comprising the best ships of her Navy, concentrated in the Pacific.

While it is natural that naval bases should be improved according to the changes in the distribution of her naval forces, the facts are that this is being done on a gigantic scale. In general, the United States naval bases in the Atlantic are being left unimproved, or operated on a reduced scale or even abandoned. On the other hand, those in the Pacific are constantly being strengthened or extended. According to the plan adopted in June, 1923, she will during a 20-year period, beginning in 1925, spend $172,000,000 for the improvement

and extension of naval bases and air bases, $120,000,000 of which is to be spent on the five Pacific bases at Panama, San Diego, San Francisco, Puget Sound, and Hawaii.

Soon after the grand maneuvers of 1925, which caused much comment in Japan, the United States determined to make Hawaii the Gibraltar of the Pacific, and as a result Congress authorized $1,000,000 for the dredging of Pearl Harbor, every cent asked for by the Navy. A further appropriation of $5,982,000 was authorized for improvements to the naval base.

Japan.—The Japanese Navy, needless to say, holds the protection of the trade routes supplying the nation with necessities as its first and most essential duty. It does not regard any navy as its potential enemy, yet we can not altogether remain unconcerned as regards the strength of the navies of other countries. Indeed, in view of the mission of our navy, as mentioned above, and in view of our international relations and position it becomes necessary for our navy to maintain a balance of power with those of other countries.

Thus by reason of activities of other countries, as stated above, our country has been pressed to the necessity of strengthening our navy. It accordingly adopted in 1920 the so-called 8–8 program, and that this program was adopted in spite of the terrible burden to our people is still vivid in our memory. Before the program was half carried out the Washington conference was called, and in consequence we not only scrapped the majority of the capital ships not completed, but we changed that part of the program which related to noncapital ships. Then while we were proceeding to carry out this revised program the terrible earthquake came, and the damage we suffered caused us to postpone the completion of this revised program for one year. This program is now approaching its completion.

Although some European and American critics accuse us of pursuing, since the Washington conference, a construction program that provokes building competition (happily, there is hardly anyone who is misled by such accusations), the facts are that our present auxiliary ship program is the continuation of one adopted before the Washington conference, and should justly be treated in the same light as those which Great Britain and the United States have already completed. Furthermore, we have voluntarily reduced this program, thus respecting the spirit of the Washington conference.

That the noncapital-ship construction program of our navy now being discussed is in fact the replacement of out-of-date ships hardly requires an explanation. If there is any who charges that while it may be a replacement in number it is expansion in quality, such a person ignores the principle of world progress and fails to understand the truth that "self-preservation not accompanied by expan-

sion causes one to drop out of the race and leads to ultimate ruin." I do not think it necessary to refer to this phase of the situation at length, but for the benefit of some of my readers I quote a portion of one of Mr. Ito's writings. After prefacing his remarks by the fact that for war vessels there is a general standard tonnage, according to class, applicable only to a certain period of time, and that where replacement is carried out many years after construction of the old ships it must be done with ships of larger tonnage, he goes on to state:

> From a domestic point of view it is an expansion, but internationally it is not. And since war vessels are international objects an increase or decrease of their fighting value can only be estimated in comparison with the enemy's. It is not an expansion even when we double our tonnage if it is due to the doubling of tonnage by the others. * * *

I will refer here to the question of the number of ships required from the point of view of tactics. While it is true that 10 old ships often may not be equal to more than 5 new ships in their fighting power, the same reason exists from a tactical standpoint as to the number required in either case. The unit of the naval strength is one ship if in warships and one plane if in airplanes. However powerful a ship may be, one ship can not fulfill the functions of two at the same time. I do not care what they call our program under consideration, whether expansion or replacement, but I trust that my readers will consider this phase of the question studying our naval requirement of the future.

I shall explain elsewhere the fact that a building program bears the closest relation to the building capacity of the country concerned and that in this regard our country is in a position requiring a comparatively large number of cruisers.

Concerning the improvement of naval ports and bases, Japan is of course doing all that is possible to keep her present facilities abreast with the progress of the times but has not undertaken any expansion in that line, broadly speaking, since the World War. On the contrary, since the Washington conference and respecting the spirit of the conference, we have effected reduction in this respect. The Maidzuru naval station has been reduced to a minor naval station and the Ryojun minor naval station has been abolished. At any rate our policy regarding naval bases is negligible compared with the naval-base expansion of the United States and England.

As regards the improvements of various naval weapons, we are, in view of the activities of other powers in this direction, doing our best under the circumstances. But to fully satisfy this requirement necessitates far greater appropriations than are now allowed. The present conditions are therefore, I regret to say, far from being satisfactory.

I will now show by figures and diagrams how the naval policies of England, the United States, and Japan, as dealt with in the foregoing paragraphs, are being carried out:

CAPITAL SHIPS AND AIRPLANE CARRIERS

(These are restricted by the Washington treaty and therefore have less bearing upon the subject under discussion than other classes of ships.)

Comparison of number and tonnage of capital ships of England, United States, and Japan

	At present		In 1942	
	Number	Tonnage	Number	Tonnage
Japan	10	301,320	9	315,000
United States	18	525,850	15	525,000
England	22	580,450	15	525,000

Comparison of number and tonnage of airplane carriers of England, United States, and Japan (December, 1926)

	Completed		Not completed		Allotted tonnage under treaty
	Number	Tonnage	Number	Tonnage	
Japan	1	9,500	2	54,000	81,000
United States	1	12,700	2	66,000	135,000
England	4	67,290	2	37,000	135,000

NOTES.—(1) Only those having flying decks are considered above. Japan's one ship under the completed column bears no relation to the restriction placed by the treaty, but is listed here because she is equipped with a flying deck.

(2) The United States Navy possesses one completed airplane tender in addition to what is listed here.

(3) The uncompleted ships here mentioned are in such state of completion that they will be in service in one or two years.

NONCAPITAL SHIPS

Comparison of noncapital ships of England, United States, and Japan (December, 1926)

	Completed		Not completed		Total	
	Number	Tonnage	Number	Tonnage	Number	Tonnage
Japan:						
Cruisers	22	116,855	6	54,200	28	171,055
Destroyers	87	91,525	14	22,525	101	114,050
Submarines	52	45,054	19	24,433	71	69,487
United States:						
Cruisers	10	75,000	8	80,000	18	155,000
Destroyers	280	333,984	12	18,000	292	351,984
Submarines	111	80,971	6	15,000	117	95,971
England:						
Cruisers	49	245,140	23	216,000	72	461,140
Destroyers	188	225,000	27	40,500	215	265,500
Submarines	57	43,265	27	50,000	84	93,265

NOTE.—Under the column "Not completed" are included ships under construction and those whose construction is regarded as certain, having been authorized, though funds have not yet been provided. The age limit for completed ships are taken as 16 years for cruisers and 12 years for destroyers.

When we look over this table we will note that England leads in cruisers, the United States is far superior in destroyers, and Japan is slightly superior to the United States in cruisers. How these countries will finally rank in the comparison of actual strength in noncapital ships, as a whole, is difficult to judge, since the duties of each class of ships are different and the fighting qualities of individual ships is varied. Yet, considering the matter as a whole, I can not help admitting that Japan is far, far below England and the United States.

We frequently hear the argument that since Japan's capital ships are restricted in the ratio of 5–5–3, her noncapital forces should also be restricted by the same ratio. There exists the fact, however, that in case of emergency we will have to meet the enemy's fleet and we must at the same time keep our lines of supply open. Therefore, in order to fulfill these two important duties, our navy must have a sufficient force of cruisers over and above the so-called "well balanced fleet." The argument favoring the application of the 5–5–3 ratio to noncapital ships is one which overlooks questions vital to our national defense.

When one studies the building program of Japan one must take into consideration our industrial capacity, especially in ship construction and in the iron industry. Our navy to-day can be said to be slightly superior to the United States Navy in cruisers, yet we will find that this superiority is very unstable when we compare the building capacity of the two countries. The United States once built 200 destroyers in two or three years. Such a feat is impossible in Japan, even if funds were available. This being the case, our ship construction has to be carried out slowly and steadily, either by replacement or by expansion, that we may thus be in a position to meet the possible rapid expansion by the United States and England.

Concerning the classes of noncapital ships, there are varied opinions as to whether cruisers and destroyers should be treated under the same classification. Viewed from a tactical standpoint, there are reasons to do so, because while cruisers and destroyers have their own special duties, in practice they have to cooperate with each other in order to fully carry out their parts. However, the factors which determine their respective tactical values are complicated, and it is difficult to arrive at a general conclusion. The original proposal of the United States at the Washington conference was to classify cruisers and destroyers together, calling them the above-water noncapital ships, and thus differentiate them from capital ships and submarines. We think it is difficult to find any more appropriate way than this to treat the question of destroyers and cruisers.

The table given below is prepared in accordance with the United States plan, dividing noncapital ships into (1) above-water craft and (2) submarines. The ratio is calculated by giving Japan a unit strength of 1.

Comparison of noncapital ships of England, United States, and Japan (December, 1926)

	Above-water craft		Submarines	
	Completed	Completed and building	Completed	Completed and building
Japan	208,370 tons; ratio, 1	285,105 tons; ratio, 1	45,054 tons; ratio, 1	69,487 tons; ratio, 1.
United States	408,984 tons; ratio, 1.72.	506,984 tons; ratio, 1.78.	80,971 tons; ratio, 1.8.	95,971 tons; ratio, 1.38.
England	470,140 tons; ratio, 2.24.	726,640 tons; ratio, 2.55.	43,265 tons; ratio, 0.96.	93,265 tons; ratio, 1.34.

AIRPLANES

Since a change in the number of airplanes possessed by the various countries can rapidly be effected, and since it is difficult to ascertain the actual condition of machines, it is impossible to correctly calculate up to date the actual strength of the different powers. The following table, however, shows the number of airplanes possessed by various powers, as far as is known:

Comparison of military airplanes possessed by the various countries

	Navy	Army	Independent	Total
Japan	250	500	----------	750
United States	640	1,400	----------	2,040
England	160	180	660	1,000
France	360	2,000	----------	2,360
Italy	(?)	(?)	(?)	800

NOTE.—The United States has a program by which she is to have 1,000 naval and 1,800 army planes by 1931.

DISTRIBUTION OF NAVAL FORCES IN THE PACIFIC

The distribution of naval forces is governed largely by the location of naval bases, yet changes in distribution can much more easily be effected than is the case with an army. Hence, it is not always possible to judge the situation of to-morrow by that of to-day.

Viewed from the present location and condition of British and United States naval bases, it is easy for the United States to concentrate her entire fleet in the Pacific, and is easy for the British to send a large fleet to the Far East. The present distribution of naval forces is as follows:

Distribution of naval forces of England, United States, and Japan in the Pacific (November, 1926)

	Japan	United States	England
Capital ships	10	12 (6)	8
Cruisers	22	1 (9)	16
Destroyers	77	62 (47)	11
Submarines	44	47 (34)	12
Airplane carrier	1	1 (1)	1

NOTES.—Only those ships that can be put into action without lengthy preparations are considered.
Only those noncapital ships falling within the age limits already mentioned are considered.
The figures in parentheses under the United States column represent those in the Atlantic.

JAPANESE BASES

As regards our South Sea Islands, they are under the suzerainty of the League of Nations and the establishment of army or navy works there is prohibited. Therefore, at present as well as in the future, such a thing as the establishment of naval bases there is out of question. Yet by reason of their geographical position they must be defended by our navy.

From my discussion this far, we see that the Japanese Navy, at present, occupies a superiority in the western part of the Pacific, in our home waters, but when we survey the distribution of bases and lines of communication and compare our building capacity with that of other countries, we certainly can not afford to feel elated over a superiority merely in local waters. Especially we must bear in mind that, in case of emergency, the lines showing the distribution of bases and colonies and the lines of communication cross with those of the enemy. One must fail if the other win. One will be closed if the other remain open.

Thus we will see that in the northern and central part of the Pacific the Japanese and the United States arcs cross each other, and in the western Pacific the British, United States, and Japanese arcs cross each other in a more complicated manner.

However, since these arcs can not be based on any definite mathematical calculation, their crossing or not crossing does not indicate any positive principle. It suffices if we can see the outline of the strategical status of the Pacific, by the above means, namely, by plotting the various spheres of activity of the various fleets, measured under a common standard.

While I earnestly hope that my readers will fully understand that I, by no means, want to convey an impression that the crossing or overlapping of such assumed spheres of activity possesses any element of serious danger, I do hope that our people will not make light of these situations, and fully realizing the position of our country, will make adequate preparation so that we may be able to properly defend our country in case of emergency. Indeed, I am of the belief that the realization of the seriousness of our position, and the making of necessary preparations by our people, is the best and most essential measure for the maintenance of peace in the Far East and in the Pacific.

CONCLUSION

The Pacific Ocean is the common property of the world—the main stage for different powers and is not a pond belonging exclusively to us. We therefore must expect that many dangers and difficulties are ahead of us. The welfare of an island nation must

depend on communications and transportation between her and foreign countries. How, in our case, shall we guarantee the maintenance of these lines?

When we seriously think of the condition of our country, we can not help realizing the smallness of our land, the excessive population, and the scarcity of resources. Our population of 969 for every 1 square kilometer of tillable land (statistics of 1920) is two and half times that of Belgium, the second most densely populated country in the world, and our annual birth rate of 726,000 is also the highest birth rate in the world. Among life's necessities imported are grain and iron, each $100,000,000, cotton $250,000,000, petroleum (exclusive of military and naval supplies), $18,000,000 annually.

To maintain the life and existence of a nation, in accordance with existing conditions, is the foremost mission of national defense. We above all must select appropriate lines of supply, and study how to keep them open for there is no such thing as national defense or armament independent of the existence of the nation.

When we survey the distribution of the world's resources to-day, Indian cotton, East Indian oil, Chinese iron, and Manchurian grains—all answer our demands. But our future development will require much greater supplies than now. We certainly hope that this fact in no way will affect the perpetual peace of the world, yet, I regret to say, we can not always expect our ideals to come true. Therefore, I consider it absolutely necessary for us to safeguard our lines of communication and transportation east of India, and north of the Dutch Indies, as the minimum requirement for preservation of the existence of our nation. In other words, I consider the acquisition and maintenance of sea control over the area northeast of the Indian Ocean, and of the western part of the Pacific, as the minimum that is to be expected of our navy. Now, in order to do this, we must, in time of emergency, look to the protection of these lines. At the same time, we must be prepared to meet the enemy's fleet. I have already stated that it is difficult for our navy to fulfill these complicated duties of national defense merely with a single "well-balanced" fleet as some people seem to think possible.

In my own opinion, since our capital ships are restricted in the ratio of 5–5–3, it is necessary for us to maintain, at least in cruisers and other noncapital ships, a force in no way inferior to the navy of any country that may come into the Pacific.

As regards the various classes of armaments, there are many that should be improved or given wider application. To these and other factors, I earnestly solicit my reader's careful consideration.

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OFFICE OF NAVAL INTELLIGENCE
NAVY DEPARTMENT
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In general: Bureaus of the Navy Department; all force commanders; all commanding officers of capital ships, the larger patrols, destroyers, and submarines

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Gunnery Officer			
Navigation Officer			
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"A" Division Officer			
"B" Division Officer			
"E" Division Officer			
"M" Division Officer			
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"R" Division Officer			
Radio Officer			

The material for the BULLETIN is largely derived from service sources and its interest and value are correspondingly dependent upon the number and character of the reports received by the Office of Naval Intelligence from our own officers. In this connection the observations of officers afloat are of great value, particularly if the reports rendered are drawn up in accordance with existing intelligence instructions.

While political and economic information is undoubtedly of much use, the collection of military information should come first in the intelligence work of cruising ships.

NOTICE

The contents of this number of the BULLETIN are based upon information received in the Office of Naval Intelligence between March 20 and April 25, inclusive.

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O. N. I. MONTHLY INFORMATION BULLETIN

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ARGENTINA

A. AERONAUTICAL

1. Army, navy, and civilian aeronautical activities.

The Army has purchased through its armament commission in Europe 18 Breguet observation planes, type XIX, with Lorraine 450-horsepower motors; 12 Bristol fighters with Hispano Suiza 300-horsepower motors (war surplus); 8 Avro training planes with LeRhone 110-horsepower rotory motors (war surplus); 8 Devoitine pursuit monoplanes with Hispano Huiza 450-horsepower motors. The Navy has purchased 8 Huff-Daland training planes and 3 Curtiss JN's in the United States. During the same period (1925–26) 27 airplanes were imported in Argentina for civilian use, to wit:

6 Curtis Orioles with Curtiss 160-horsepower motor.
8 Curtiss JN with Curtiss 90-horsepower motor.
5 Mercury with Curtiss 160-horsepower motor.
6 Meteor with Curtiss 90-horsepower motor.
2 Caudron with Hispano 180-horsepower motor.

All sold by the Curtiss representative excepting the 2 Caudrons.

Although Argentina is an ideal country for flying, the number of aircraft used, outside of the army, is negligible. Several aeronautical missions came from Europe in 1919–20 making numerous cross-country and exhibition flights, and the enormous publicity given to these flights awakened a certain interest for aviation, which, however, gradually died down until at present there are only nine private airplanes in service in the country. Eight aviation companies with their flying fields have been formed since 1919—1 American (Curtiss), 3 British, 2 French, and 2 Italians. All have failed and suspended flying activities, except the Curtiss Co. In 1923 Congress passed a law appropriating a yearly sum of 250,000 pesos paper to be used by the army air service to foster civil aviation. With these funds the air service opened up several flying fields in the Provinces where aero clubs were organized, and purchased from

the Curtiss representative 25 training planes which were distributed, together with a mechanic and a pilot instructor, among these aero clubs. With this form of subsidy the aero clubs are, for a nominal charge, carrying passengers, the object in view being to make aviation popular and to give instruction in flying to men of military age who, upon graduating as pilots, become reservists. These clubs are not a success, being continually in financial difficulties due to the fact that the public is not interested. The types used are Curtiss JN's, Curtiss Orioles, Mercury's, and Meteors, all with Curtiss motors. The price paid by the Government or private individuals for these planes averages $4,000 for the 90-horsepower and $6,000 for the 160-horsepower. The two French Caudrons of new production, powered with Hispano 180 motors, were sold at $3,900.

The army and navy offer quite a market, but the American manufacturer is handicapped by the high cost of production and by the fact that the army has always purchased its armament in Europe. It has a permanent purchasing commission there; the officials know little or nothing about the United States and they all lean toward France. Due to the much lower prices quoted by French and Italian aircraft manufacturers, pressure is now being made upon the navy department, whose tendencies have always been toward the United States, to follow the steps of the army. Here is a concrete example: The army is paying 36,000 pesos paper, or about $15,000 United States currency, for the observation Breguet, Type XIX, with Lorraine 450-horsepower motor, fully equipped with guns, radio, camera, sights, and racks. This plane, being entirely of duralumin construction, fuselage, and wings, could not be sold in the United States, with the equipment, for less than $35,000. We know that the modern American observation plane has a far superior performance, but the French Government has used the Breguet in establishing many world records, and Argentines, who know little or nothing of our military airplanes, think the Breguet is the best. It follows that the best plan to help the American manufacturer would be to send a mission to South America with some of the best types of military planes and demonstrate their superior performances, or else to break, at home, the existing French records and subsidize the manufacturer in some direct or indirect way so that he could somewhat lower the prices. The French manufacturer has several factors in his favor—depreciation of the franc, large subsidies, quantity production, and cheap female labor.

The Curtiss and Wright motors are considered by the Argentine aviators as the best low-power motors in the world, but the price, excepting the OX motor, is considered exorbitant.

Four types of engines are at present being imported by the army: LeRhone rotary 110-horsepower for the Avro training planes; this is a war-surplus engine for which they pay about $300 United States currency each. Hispano Suiza 300-horsepower 8-cylinder, also a war-surplus engine, the price of which is about $1,500 United States currency delivered. Lorraine-Dietrich 450-horsepower and Hispano Suiza 450-horsepower, both of new production, at $4,000 United States currency delivered.

NOTE.—Since the above was written, the Curtiss representative has also withdrawn from Argentina.—Ed.

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2. *Spain-Argentina airship line.*

[Source: German press]

The much-admired ocean flight of the *ZR–3*, the only one of its kind, was a singular affair in the history of aeronautics, not only on account of the bravery of the undertaking but rather because this pioneer flight offered the most convincing proof that a transoceanic passenger airship service was no longer an Utopia, but had become an actual possibility. If further evidence were needed, this has been amply furnished by the feverish activity during these last days in the Zeppelin factory in Friedrichshafen. It was only a short time ago that both shops and laboratories presented a very sad appearance, under the pressure of the Entente's restrictions. However, today the shackles with which the uncomprehending enemy thought to bind German aeronautics for all time have fallen because real progress in international aeronautics was impossible without the cooperation of German technic and, therefore, the Zeppelin Co. is taking steps to perfect its new and tremendous work, represented by the impending opening of a regular air line from Europe to South America. A few days ago some very interesting announcements in this connection which were made by Herman Mayenberger, one of the Zeppelin directors, who is now in Madrid in connection with the negotiations with the Spanish Government regarding the air-line project from Seville to Buenos Aires. According to his statements, the opening of this trans-Atlantic air line will take place probably in 1928, being dependent on the construction of an air port in Seville in the immediate future. We are, therefore, on the threshold of an important turning point in the development of international air traffic. In this connection, it will be of interest to take up some of the constructive details of the *LZ–127*, which will be the first air cruiser to span the gigantic distance between Europe and South America. A few months ago

work was begun in the Friedrichshafen factory on the erection of a test portion of the framework which, when finished, will consist of eight divisions. It was found necessary to erect first a lower section alone because it was desired to try out the numerous constructive innovations first on individual sections. This trial section of the *LZ–127* is now almost finished. In a few days work will be begun on the necessary tests, the pressure tests, and the installation of the carrying and fuel-gas cells which are essential in the construction of the hull. Then on the basis of the experience gained in these tests, work will be begun on the construction of the ship itself, which is to have a volume of 105,000 cubic meters. According to present calculations, the construction will take the entire year of 1927 so that the completion of the ship can not be expected before early next year. Part of the expenses of this ship are being defrayed from the funds of the Zeppelin-Eckener fund, 2,600,000 marks being available from this, while the balance must be obtained from other sources.

As regards the constructive details of this new ship, there are two points of particular interest: In the first place the Zeppelin Co. is not, like the English, using steel for the construction, but the frame will as usual be made of aluminum alloy. The second point is in connection with the new fuel gas which in future will be used in the motors in place of benzene. The Maybach Co. has just completed the tests with the new fuel, with the most satisfactory and gratifying results. They showed that even when operating under long strain the motors run satisfactorily and all anxiety regarding the overheating of the motors proved to be absolutely without foundation. One moving point in the adoption of the new fuel gas was the expectation that the carrying power of the airship could be very greatly increased for useful load through the absence of the dead weight of the benzene and that, added to this, the cruiser could have a greater cruising radius. Outside of the use of this new fuel gas, whose quantity production has not yet been settled altogether, the ship will also be equipped with a number of other innovations of a navigational and radio nature. At the present time tests are being made with improved instruments for sidereal measurements and bearings. However, the point that will especially distinguish the new ship will be the interior fittings, which will be on a par with an ocean steamship in convenience and general comfort. During the four days' journey, the passengers will have such luxurious surroundings that they will forget where they really are. There will not only be 20 double cabins, but the front car will contain a dining room entirely paneled in wood which will accommodate 40 persons and afford them a most ideal view from the windows. There will be ventilators to guarantee the proper temperature in the dining car even when in the Tropics. The seats in the dining room will be upholstered and

the food will be prepared in an electric kitchen; it will be served at small tables. The trial flights, which are to be held early next year, will be very extensive and will not be limited to Europe alone. It is intended on one of these to cross the Atlantic and also make a trip to the North Pole for research purposes before going definitely into the South American service. It has not yet been decided whether these trial flights will start from the Friedrichshafen factory or from the Spanish coast. This question will depend principally on whether work will be begun this year on the large hangar in Seville.

NOTE.—Details of the Spain-Argentina airship service have been given in the "Bulletins" of the last few months.

CHILE

A. NAVAL

1. New destroyers.

The bid of the firm of Thornycroft (English) has been accepted for the construction of six destroyers for the Chilean Navy.

The details have not as yet been made public, but the general terms are understood to be for boats of 1,320 tons, 310 feet, and 35 knots.

Thornycroft's special representative is now in Chile.

NOTE.—The purchase of the above six destroyers has been rumored for some time. Numerous bids were submitted by French, Italians, Japanese, etc., but apparently no bids were asked for or submitted from the United States. The English press is very jubilant at having secured the above bid.—Ed.

B. AERONAUTICAL

1. Army and privately owned planes.

ARMY PLANES (ACTUALLY IN CHILE)

Number	Type	Description	Make of engine	Horsepower
[1] 14	Vickers observation	Biplane biplace	Napier Lion	450
[2] 3	DH–9	do	Siddley Puma	230
[3] 1	Junkers observation	Monoplane biplace	B. M. W.	180
[4] 8	Briston training	Biplane biplace	Bristol Lucifer	100–120
[2] 2	Avro training	do	Hispano Suiza	180
[5] 6	Junkers	Transportation and bombing monoplane.	B. M. W. (Junkers), 3 motors each.	280
[6] 26	Wiebault pursuit	Monoplane monoplace	Bristol Jupiter	450
[7] 2	Curtiss pursuit	Biplane monoplace	Curtiss D–12	430
[8] 1	Sopwith experimental 5–A	do	Hispano Suiza	220

[1] These planes are about 14 months old and are fairly serviceable.
[2] These planes are old and their serviceability very uncertain.
[3] This plane out of commission and no attempts being made to repair it.
[4] 2 of these planes damaged sufficiently to require major repairs; the rest are serviceable.
[5] 1 of these planes is being erected; the others are ready to fly.
[6] These are new, all-metal planes; 13 have been erected and the rest are here awaiting erection.
[7] 1 of these planes has been sufficiently damaged to require major repairs. The other is ready to fly. Both are new planes.
[8] This plane is very old and its value negligible.

There is not sufficient hangar space available for all planes; consequently the Junkers and Wiebault planes (both all-metal types) are being left outside. Their deterioration will be rapid.

ARMY PLANES CONTRACTED FOR

Seven Curtiss pursuit, biplane monoplace, Curtiss D-12, 430 horsepower. These planes should be erected and ready to fly by April 1, 1927.

PRIVATELY OWNED AIRPLANES

Number	Maker	Type	Make of engine	Horsepower
1	Moraine	Monoplane, 2 seats	Le Rhone	80
1	Curtiss	J N biplane, 2 seats	Curtiss OX-5	90
1	do	do	Curtiss C-6	160
1	do	Standard J-1, 2 seats	do	180
1	Caudron	Biplane, 2 seats	Le Rhone	80
[1] 1	D. H. Moth	do	Cyrus	60

[1] This plane is the only one in good condition. The condition of the others is, in general, very poor.

NOTE.—The seven Curtiss pursuit planes contracted for are "Hawks," contract for which was signed last November. Chilean naval aviation is practically nil.—Ed.

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2. Air-base projects.

Proposals have been opened for the construction of buildings and other works in preparing an air base at "Solar del Carmen," near Antofagasta. According to the papers, only two bids were submitted—one for about $130,000 United States currency and the other for about $70,000 United States currency. There is no indication of the extent of the construction.

CHINA

A. MISCELLANEOUS

1. General impressions.

The following has been written by an Army officer who has recently returned to China after an absence of two and a half years.

I feel that undue stress has been placed by our public men and our press in America upon certain features of the so-called Chinese "struggle for freedom." I believe that a degree of idealism has been attributed to nationalistic leaders which they do not deserve and that the depth and momentum of nationalism have been given an undue importance. The extraneous influence of the Soviet Russians has been considered too lightly. Weakness and indecision in

the West have been interpreted as strength and changed conditions in China.

The widespread radical-inspired labor agitation and mob violence has developed since these impressions were written.

ANTIFOREIGNISM AND NATIONALISM

The attitude and manner of the man on the street under perfectly normal conditions is no sure index to the feelings of a people. However, from the accounts of the numerous incidents in which antiforeignism was evident, read while in America, I was prepared to expect a notable difference in the attitude toward foreigners of Chinese crowds, ricksha coolies, laborers, and domestic servants. While en route I was only in Hong Kong, Shanghai, and Tientsin—port towns, it is true—but it is here that one most expects to sense racial antipathy. In no instance could I observe any evidence of increase in dislike for foreigners.

It has always been observed that as one travels from North China to Shanghai and thence to Hong Kong he notes a progressively increasing indifference, if not surliness, on the part of coolies, servants, and street groups. The northern Chinese are traditionally better natured and more sympathetic; perhaps more stupid.

Traveling from south to north, the impressions previously gained held true, and I could not bring myself to feel that the attitude of the Chinese man on the street had changed for the worse. The contrary of this is always expressed by people who return to Manila after the lapse of a few years. I am, however, generally assured that during certain crises in Chinese-foreign relations there was evident an attitude of hostility among the masses of people. There have been, and are still, instances in various cities aside from Shanghai and Canton of the street crowds, servants, etc., being inflamed against foreigners. These instances are usually traceable to definitely organized radical elements or officers who find it expedient to foster antiforeignism. In Peking, during the period when the Kuominchun were holding their position near Nankow, I am told that even the day laborers were restive, given to political talk, and were wholly indifferent as to the quality and amount of work performed. Of course this was the heyday of local student activities. The drastic measures of Tuan Chi-jui's bodyguard in killing students effectively and immediately stopped public student demonstrations, and labor unrest as well.

I can not avoid the conclusion that the great mass of Chinese people, even in port cities, is less affected by an unusual or deep feeling of hostility toward the foreigner than the pronunciamentoes of radical students and officials would lead us to believe. As for the

greater mass of Chinese peasants all over China, they have not materially changed their attitude toward foreigners since the day they gazed stupidly at their first missionary. I do not say that students, politicians, and radicals have not adopted radicalism and are not stirring up crowds to agitate most menacingly toward foreigners upon occasions. Nor do I say that at heart the Chinese are not naturally resentful of foreigners—their presence and their works. I do say that after the absence of a few years I can see little fundamental change in the attitude of the mass of Chinese toward foreigners. I further believe that most Chinese demonstrations against foreigners arise not from an increasing feeling of hostility on the part of Chinese common people but from a carefully planned campaign by agitators who may be students, radicals (in Russian pay or not), or officials. In general, I believe that officials can start antiforeign demonstrations and can equally well stop them. This I consider an important point.

I would not want to give the impression that I think things are standing still in China. Revolutionary forces are at work here, but I fail to see that they have permeated deeply into the Chinese masses. As each year passes, the leaven of nationalism, radicalism, antiforeignism (I prefer to group the forces under the name of pro-Chineseism) is working more thoroughly throughout the mass. Faster still, and more important to us, so far as the conduct of the masses is concerned, is working the destructive forces of sheer lawlessness and lack of control which are general throughout China and which result from the disappearance of the Empire and the substitution of nothing in its place—not from justifiable pro-Chineseism. Most of the incidents of violence to lives and property in the interior of China to-day result from absence of constituted authority and resulting chaos, rather than from any spread of pro-Chineseism. Almost every robbery, killing, or kidnapping is inspired by the same motives as the same criminal act in New York City, and one would hardly attribute motives of nationalism or antiforeignism to a gunman in Gotham.

There is this difference in the menace to a missionary in Kweichow and the danger to a foreigner in Tientsin: In the former case, criminals are free to operate due to the breakdown of authority of Chinese officials; in the latter case, disorderly elements are incited to violence by radicals, students, or nationalistic officials, with the permission of the officials. Aside from the groups last mentioned, which are relatively a small but important part of China, I believe the attitude of the Chinese people toward foreigners is little changed. Hence, any proposed method of arresting the present tendencies in China or insisting upon just treatment of our nationals by force must have to do with impressing our will upon officials who still

undeniably do control certain areas. Little concern need be had for the "400,000,000," who are as supine as ever.

The change that is taking place in China is, then, the increase of lawlessness among the masses and the rise of pro-Chineseism among the small articulate group of radicals, students, and officials, both diplomatic and militaristic. As pro-Chineseism increases among the latter, lawlessness, having nothing to do with nationalism, increases among the former. The present aggressiveness as directed against foreign interests is purely the work of a small active group and, in general, is yet susceptible to control or direction by a limited number of officials. Of course the degree of this control decreases daily, and the aggresive pro-Chineseism is daily permeating lower and lower in the ranks of Chinese officialdom, just as sheer lawlessness becomes more widespread among the masses.

Some doubt may be expressed as to the degree of control officials still have over the agitators. It is quite well established that in Canton the conservative element of the Kuomintang could have controlled the radical agitators, who were simply paid men, had they available sufficient money. They could not pay the strikers; the Russians could and the latter dominated the situation. It must not be overlooked that money can make or stop agitation of any kind in China. Russia's final card in each situation where she combats indifference or conservatism is the freeing of money.

I do not believe that the situation is so far gone that the clear-cut announcement by a strong western power or a group of such powers that treaty stipulations will be upheld, regardless of the force to be employed, that a certain number of officials would not immediately fly to cover. As soon as the power or powers began to apply actual force and no back steps in the way of altruistic announcements or reservations were published, I am convinced that the majority of the official class would show signs of fear at the possibility of being left on the wrong side of the fence. In other words, despite recent bombast, Chinese racial traits have not undergone a radical change. Chinese do not adopt lost causes. Chinese are timorous before direct action, and Chinese have only veneered their respect for western force with an appearance of boldness which thickens only as western powers depart from their traditional direct action in favor of wholly misconstrued altruistic compromises.

I am not saying that the west should use force in China, but I am convinced that they could still do so effectively. The fear of "reactions all over China" has become a bugaboo which I think is wholly unwarranted. Half measures would result in unhappy repercussions all over China, but cold, deliberate decisions to use force without stint, and an announcement to that effect, combined with notice to all officials that they would through all grades be held

responsible for any violence to foreigners with their lives and their wealth, would occasion consternation among Chinese officials just as it did in the past. And if, as I believe, the officials still retain a fair degree of direction over those elements which now only are stirring up antiforeignism, they could prevent the outburst of violence we have so come to fear. It must be remembered that the 400,000,000 are supine except in so far as organized incitement plays on them and continues to play on them. There is little evidence to show that respect for western force has disappeared in China, even though recent western diplomacy has come to be recognized as the sheer bluff it is.

THE NATIONALIST MOVEMENT

Much importance has been attached to a rising sense of nationalism in China. As has been stated before, this is a force which is growing rapidly, but has as yet permeated little into the Chinese masses. Considerable sentimentality is being voiced in England and in America as to the real meaning of this nationalist movement. Mr. ——— has to-day been quoted as saying that the real trouble here is a clash between Chinese nationalism and imperialism, and that "any nation which adopts a policy of forcible intervention there will become an assassin of justice in the Orient." Moscow could not have better expressed it, and nothing could be less faulty as an observation of what is wrong in China. It can not be denied that western nations, "capitalist and imperialist" as they are, have hastened China's internal conflict, which fundamentally is an inevitable clash between the dusty, lethargic past, and modernity. A revolution is in progress in China and it is accompanied by a loosing of selfish and savage instincts which men display in most violent revolutions. Just what influence imperialistic nations are having upon the present cat-and-dog fight in China, I am at a loss to see, except that diplomatically they are trying to slow up an undirected tendency toward chaos which if permitted to gain momentum will result in the destruction of wealth and loss of lives in a way roughly comparable to the same processes in Russia. I can see no inhumanity in the imperialism which does not seek to arrest a revolution but which insists only upon applying intelligent brakes thereto. I can observe no policy of imperialistic powers which to-day is not sympathetic and liberal toward China. The western powers insist only upon international responsibility rather than upon a senseless disregard for every established obligation and working agreement.

The only violent contact is between China and Russia. The latter country has actually intervened and forcibly intervened in China with money, soldiers, and propaganda. She is attempting to direct

affairs in China in a way which, with the possible exception of Japan, has never been attempted by other nations. That this Russian direction has in it any object other than furtherance of world revolution, only Mr. ——— can see. In spite of the organization which the Russians are imposing upon the Canton-Kuominchun group, if Russian efforts in China are constructive it is a conception unique to few besides Russians. If present Soviet activities in China differ from the activities of czarist Russia they differ only as to technique and as to ultimate aims, which aims are of most dubious improvement over those of old Russia.

This "justice in the Orient" of which a nation adopting a policy of forcible intervention, will be an assassin, has an appeal to American ears peculiarly political. I contest the statement beforehand of any man who produces evidence of any justice, as we know it in America, which has been displayed by China in her dealings with inferior, equal, or superior nations. I defy anyone who pretends that China or China's statesmen, past or present, have carried out any agreement without availing themselves of every opportunity of evasion, and did not seek advantage in every agreement unless prevented by pressure or force. There exist unequal treaties which have been forced on China, and the methods by which these treaties came into being are certainly not above reproach. Many terms of these unequal treaties are necessitated by conditions peculiar to China, conditions which Chinese could not or would not efface. With China's attitude toward international agreements, and this attitude is traditional, the terms of no treaty, equal or unequal, can be carried out without constant pressure being exerted by the other party to the treaty. This statement is broad, but will be contested by no man who has intimate experience in dealing with the Chinese. Stated otherwise, there can be no such thing as the practical application of an equal treaty with China. Either China will encroach to her own advantage upon the wording or spirit of the treaty or some method of forcing regard for the treaty must be imposed by the other party. The unhappy choice remains for western powers between using force in some form to exact justice in China's adherence to a treaty, or having China take every advantage she can of each situation which arises. This is not exaggeration. It is folly to expect justice in China; neither her own people nor her neighbors have ever experienced it, internally or internationally. Is the west to be considered an assassin if she exacts by forcible intervention reasonable justice which she can exact from China at the present time in no other way?

Much of the attention paid the nationalist movement conducted by the Cantonese is due to publicity methods directed from Moscow

and Canton. The recent military successes also have been sensational. The majority of foreign observers in China concede that the Cantonese are conducting a unique operation, insist that it will succeed, and that we shall soon have to recognize the Kuomintang government instead of the group now holding Peking. From this it naturally follows that China will free herself from western imperialism, northern militarists, etc., and that the era of peace will have come. On the theory that if one cries "wolf" sufficiently often the wolf ultimately appears, some movement in China should succeed. Reasoning otherwise, namely, that so many movements that promised well have loomed up brightly, burned a space, and then become extinguished, we can well be cynical about this effulgence which floods the territory south of the Yangtze. The Canton nationalist movement is undeniably popular. In the south the Canton forces have received a notable welcome. Kuomintang members are widespread, they are often shrewd and influential men, and they are spreading favorable propaganda everywhere. Russian-directed propaganda teams also are actively enlisting sympathy for the movement all over China. The avowed aims of the Kuomintang, to free China of northern militarists and foreign imperialistic influence, appeal to all Chinese who do not find it to their advantage to hold to other aims. The Chinese, up to a certain point, fly to a winning cause. All of the foregoing factors favor the Cantonese.

Against these favorable factors are the following: Much of the present enthusiasm of the southern provinces is due to the expulsion of the hated northern soldiers from their midst; southern soldiers will soon be equally irksome. The Cantonese politically are not peculiarly stable. On the contrary, they are much given to disrupting party feuds. The Chinese often fly to a winning cause, but they have an innate fear of too much centralized control, and the moment a group attains a great amount of power they begin their inevitable leveling processes to weaken the "white hope." The northern militarists, while decidedly not cemented by a common aim, can array more and better equipped troops, and the personal interests of their leaders are as much at stake as the personal benefits of the southern leaders. Remember that Chang Kai-shih's heart is not burning with intense nationalism any more than is Chang Tso-lin's. After the first enthusiasm of southern soldiers and southern sympathizers, the natural Chinese tendencies toward disintegration will set in. The "400,000,000" are little concerned with nationalism. The real agitators for nationalism will not stand success better than have thousands of Chinese reformers aforetime.

Again I must repeat that I realize things are not standing still in China; however, I have personally observed the rise and fall of many movements in China in which both Chinese and foreigners pinned

their hopes for a brighter future. The Shanghai peace conference would unite north and south and all would be well. The expulsion of the Anfuites would free China from the blighting hand of Japan, and China could then start joyously on her way. Wu Pei-fu would unite the country by force and a new era would dawn. Feng Yu-hsiang would drive out the other militarists (and the Britishers) and plant gardens all over China. Now Sun Yat-sen's spirit, the spirit which in the flesh seemed only to stir up trouble, is now revived by Russian advisors with Russian money, and elevated as the host by Chang Kai-shih. Chang Kai-shih—reeking with idealism—and we in China hope that China is saved by the nationalist movement.

I can not but express my serious doubts about the ultimate success of the Canton nationalist movement. I do not think it will succeed, nor do I think that the Chinese if left wholly to their own devices by the imperialistic United States and Great Britain will for years evolve any government capable of preventing conditions comparable to those existing to-day, or worse, or capable of conducting responsible international relations. I further fear that without some very definite intervention on the part of the United States or Great Britain, or both, Russia may bring about a condition of chaos here compared with which the conditions to-day are mild. The form of intervention to-day could, I believe, still be in the nature of a definite announcement that henceforth China will be strictly held to her present obligations until such time as these obligations are modified by recognized procedure; that any failure to discharge these obligations will be dealt with by all the forces at our command. The announcement accompanied by a few minor demonstrations of our sincerity would, I believe, to-day start us on the road to proper relations. If this is delayed the situation, greatly aggravated by Russia, may ultimately have to be handled, not by minor expeditions but by war, the nature of which will be difficult to foresee, but which will involve more than China.

THE CHINESE ARMY TO-DAY

I have been impressed with certain statements which I have recently read of the improvement in Chinese military forces. There are many who believe that tremendous strides have been made by certain prominent militarists in increasing the combat efficiency of their troops. This is undeniably true. Certainly it would be unreasonable to expect that all of the operations of the past two years had not produced results due, if to no other reason, to continued experience of the leaders and their staffs in actually leading troops in combat and in shifting them over rather widespread fronts. Likewise, the troops themselves have benefited from battle experience.

There is a slightly increased number of men under arms, and there are more modern implements of war in the hands of troops. The arsenals at Mukden are modern and capable of turning out more matériel, as is also the Canton arsenal. Other arsenals have perhaps become less efficient during the same time.

However, no national army has come into existence, and the two most effective forces to-day, namely, Fengtien and the Cantonese, are bent on each other's destruction. Minor leaders are still following the policy of shifting to the winner or of combining against the winner, depending upon their personal aspirations. In brief, no cohesion in the Chinese military forces has developed.

No Fengtien divisions have shown any marked superiority over Wu Pei-fu's old divisions, nor have any Cantonese divisions as yet demonstrated any right to claim superiority over Fengtien units. Fengtien troops are the best equipped to-day, but, except for increased number of machine guns, field guns, and trench mortars, are not better equipped than were the old Northwest frontier defense troops. There have been instances of late where the will to win was evident among Chinese forces of all leaders, as it was among Wu Pei-fu's troops in 1920, and as it has been at various times in Chinese history.

Conceding a certain degree of recent improvement in Chinese forces, the following must not be forgotten: practically every weapon employed is of foreign manufacture or was manufactured under foreign supervision. Not a single weapon was conceived by a Chinese. Every new principle in attack or defense observed in recent operations was employed at the suggestion of, or at the insistence of, some foreign instructor. The Cantonese to-day are successful due to Russian technical and tactical assistance and to Russian propaganda methods.

Again conceding improvement in the Chinese military forces, such improvement is directly attributable to foreign assistance and usually insistence. In the meantime what are foreign armies doing? Judging since the days of the Chinese revolution, can one say that the Chinese equipment or knowledge of the military art has increased relatively to that of western armies? Except for a slightly improved quality of leadership, I can not observe any great improvement in modern units over units I saw in 1920. Let any Chinese leader to-day organize his own defense and, in spite of universal appreciation of depth of position, he will organize one line of defense. I do not believe that Chinese machine guns and ammunition compare with American standards. In spite of instruction from Russian and Japanese officers, Fengtien artillery which has recently been reported on very favorably, can not be said to compare with European or American artillery in the simplest methods of fire control or in matériel. As

for fire direction, there is none; and as for tactical handling and methods of precision fires, the Chinese have no conception. The more technical the arm, the less relative efficiency may be expected of the Chinese. It is interesting to hear of his lack of respect for artillery and airplanes, which only indicates his inability to employ them effectively.

Assuming that Chinese appreciation for and ability in the military art increases rapidly, his lack of technical skill will always place him in a disadvantageous position, vis-à-vis western military forces. It is erroneous to compare him with the Japanese and their extraordinary development along military lines. The qualities which have made the Japanese modern and efficient, even technically, as soldiers, have always been notably lacking in the fundamental character of the Chinese. The Chinese have varied in their development, or lack of development, so markedly from the Japanese along all lines that analogies drawn between the two people are misleading. This could be shown more extensively if space permitted. With all of the practice that western armies have had in attack, defense and maneuver, and with all the thought military men have intelligently concentrated on these subjects, a Chinese army, equally equipped, would have no chance of success against a modern force. Adding the tremendous advantage of western technical devices and equipment (air force, modern artillery, gas, etc.) which the Chinese do not have, and will never have so highly developed, an inevitable rout would be in store for a Chinese force of even a much greater strength. Russia in the war showed the futility of more strength in men. The 400,000,000 must not be taken seriously, because it is traditional that the 400,000,000 are supine—they do not fight.

CZECHOSLOVAKIA

A. MISCELLANEOUS

1. Political and strategic situation.

The following notes, prepared by M. I. D., are extracted from a combat estimate of Czechoslovakia.

GEOGRAPHIC INFORMATION AFFECTING THE STRATEGY OF THE COUNTRY

Czechoslovakia is geographically and militarily weak, due to the shape of the country; it is six times longer east and west than it is north and south. Most of the means of communication run in a northerly and southerly direction, with the result that efficient communication along the longer axis is not possible. Czechoslovakia has no seaport and owns no railway to the sea, although the Versailles

treaty gives her transport rights on the Oder, Elbe, and Danube Rivers.

The northern and western frontiers run along the crests of mountain ranges, thus affording protection against Poland and Germany.

Prague, the capital, is located in the northwest portion of the country, only 55 miles from the German frontier. There are also good roads and railroads leading from Germany to Prague.

The Czech salient running west between Prussia and Bavaria favors a western move by Czechoslovakia to meet an eastern advance by France, thus separating Bavaria from Prussia and paralyzing any German mobilization. Viewed defensively, the Czech salient is a weakness.

PRESENT SITUATION

France and Czechoslovakia probably have a military understanding with regard to united action in support of the Versailles treaty. Czechoslovakia's present leaders have shown pronounced views in favor of peaceable settlement of disputes. Czechoslovakia is a member of the League of Nations.

An element of weakness is the presence of very strong German and lesser Magyar minorities, but these appear at present to be convinced of the Czech intention to treat them in a spirit of fairness.

Czechoslovakia is a member of the Little Entente with Yugoslavia and Rumania, organized to hold Hungary in check and compel observance by Hungary of the war treaties. The countries concerned have used the Entente as a means of consolidating and making more powerful their representation in the League of Nations and also in general European negotiations. One of its aims is to prevent the union of Austria with Germany.

FUTURE SITUATION

From the economic viewpoint, the country is stable. Czechoslovakia has signed the Locarno agreements, and her present interests favor a sincere carrying out of their provisions.

FRANCE

A. NAVAL

1. Building program, 1927–28.

The Minister of Marine has presented to the Chamber for approval, the proposed 1927 building program. In all probability the "projet de loi" will be approved as presented.

Practically the only radical change from the original project is the substitution of 6 destroyer leaders (2,700 tons), for the 3 destroyer leaders and 4 destroyers (1,500 tons).

With the approval of the present project, the 1927 building program (construction can not possibly be commenced before January, 1928) will be as follows:

One light cruiser, 10,000 tons,
Six destroyer leaders, 2,700 tons,
Five seagoing submarines, 1,600 tons,
Four coastal submarines, 600 tons (Loi de Finance, December 19, 1926),
One mine layer, 800 tons (submarine),
Two gunboats, 2,500 tons.

NOTE.—The intensity of French submarine activity is shown by the fact that since 1924 France has completed, laid down, or authorized and appropriated for the following huge submarine program: 1 boat of 3,250 tons; 14 boats of 1,550 tons; 9 boats of 1,150 tons; 3 mine-laying boats of 760 tons; 4 boats of 630 tons; and 12 boats of 600 tons.—Ed.

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2. Light cruiser "Duquesne."

The general arrangement of the ship will be substantially that shown in the sketch appearing in Jane's "Fighting Ships," edition of 1926. The vessel is about 75 per cent completed.

The vessel has no side protection and no deck protection, the double bottom being complete in way of the machinery spaces, and such spaces are further protected by a continuous longitudinal bulkhead on either side inboard of the inner bottom, forming the inboard boundary of fuel-oil tanks. It is understood that no special steel is used in the hull construction except for the protection of the magazines, conning tower, and communication tube. The protection for the magazines is 2-inch sides and 1-inch protection over and 1-inch protection at end bulkheads. Shell plating is installed in the raised and sunken system, with inside straps. No bulges are fitted. The vessel is framed on the longitudinal system, webs about every 12 feet, frames and beams being well lightened by holes along the neutral axes. The vessel has a clipper bow and torpedo stern.

Wood deck.—A 2½-inch deck of iroco wood, resembling teak in its appearance and imported from Africa, is being installed on the main and forecastle decks to a section some 15 feet forward of the forward 8-inch mount. It is also understood that a wood deck will be laid on the superstructure amidships.

Guyot boilers will not be installed due to the dimensions of this type of boiler being considered unsuitable to the ship design. Instead, small tube boilers of Schneider & Cie. type, said to be manu-

factured at the Chantier de la Gironde, are being installed, 2 boilers to each compartment—8 boilers in all—9 burners per boiler, with an additional small boiler for auxiliary use installed in a central compartment on the second deck.

Four Rateau turbines will be installed, two in each water-tight compartment, to give the vessel a designed speed of 33 knots at standard displacement, although 35 knots were said to be expected.

The forward engine room is in the middle of the boiler rooms. The designed shaft horsepower of the machinery plant was said to be 130,000. Two Diesel engines with generators for port use were noted to be installed in compartments on the second deck about amidships.

Coal ranges are being installed in the galleys located on the main deck. An electric bake oven was noted in the bakery.

The battery, located about as shown in Jane's "Fighting Ships," consists of eight 8-inch guns and eight 1.5-inch antiaircraft guns in single mounts and sixteen .5-inch machine guns—all antiaircraft guns fitted with the Le Prieur correctors—and two triple torpedo tubes on main deck aft of foremast. The barbettes of the 8-inch mounts have no protection, with a circular ring about 1 inch in thickness extending about 12 inches above the main deck as the deck attachment; above and below this ring, the plating drops to about 10 to 15 pounds.

Two housing hawse pipes in each side of bow and one at stern. Two vertical windlasses and one capstan in forecastle and one stern capstan.

Tripod foremast and metal pole mainmast.

Gasoline and alcohol for fuel are stored in three tanks in the extreme after compartment just under the main deck. One tank was estimated to be about 4 by 5 by 8 feet, and two additional tanks slightly smaller. Filling arrangement through open hatch and discharge by containers handled through the hatch with arrangements proposed for emptying by quick-opening valves.

The conning tower has splinter protection about 1-inch plating—understood to be the same for the communication tube.

The vessel has two rudders in the same longitudinal plane, the crossheads located one in each of the two after compartments. The crossheads are operated through a common shaft having a right and left handed screw for each crosshead, driven through bevel gearing by electric motors in duplicate in each compartment. Either rudder can be operated independently, or both can be operated simultaneously.

No electric arc welding is used in the construction of the vessel except for the securing of fittings, hangers, etc., where strength is not essential. Tanks, the casings of funnels, etc., were stated to have been electric welded.

The ring foundation for the catapult is installed forward of the main mast. An air catapult will be installed.

NOTE.—The "Duquesne" is of 10,000 tons, begun in 1924 and launched in 1925. She has two sister ships, the "Tourville" and the "Suffren," building, and one other authorized and appropriated for.—Ed.

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3. Visit of French division to England.

It is proposed to send a division of the French fleet to Portsmouth, England, from May 30 to June 4 on a social visit. In all probability the President of France will visit the King of England at the same time.

Rear Admiral Pirot, who will be in command, will fly his flag in the light cruiser *Lamotte-Piquet*. Besides two other cruisers of 8,000 tons, the *Duguay-Trouin* and *Primauguet*, the squadron will include the destroyer leaders, *Jaguar*, *Chacal*, and *Tigre* and the destroyers *Cyclone*, *Ouragan*, and *Mistral*.

The ships are expected to take up berths alongside the dockyard at Portsmouth in the afternoon of May 30.

A program of entertainment has been prepared by the naval entertainments committee and is being submitted to the French admiral.

NOTE.—Mention has previously been made in this "Bulletin" of the importance which the French are now attaching to flag-showing cruises. Such cruises have a dual purpose—encouraging recruiting and assisting morale (which apparently is none too good), and spreading nationalistic propaganda. Only the most modern craft are used in these cruises. Most of the above ships have just returned from a cruise to the Near East.—Ed.

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4. Speech of the French Minister of the Navy.

M. Georges Leugés, Minister of Marine, made the following speech at a banquet of the Sabord (Society of Retired Marines).

In a view of the present disarmament discussion, the speech is of interest and has been given a prominent place in the maritime press:

The naval problem is the order of the day; all nations feel that their future depends upon its solution. To properly understand it and grasp it, in all its significance, we must place it in the political and economic sphere—where it is an essential element. We must study the question from all angles of public opinion, from scietific principles, and experiences of history.

The Navy was, and is, the measure of the grandeur of a nation. Its development, or decline, is the surest sign of strength or decay.

Navies are born the moment states are constituted, and, in looking beyond their frontiers, they endeavor to carry abroad their cultures, their products, and their prestige.

It was in the sixteenth and seventeenth centuries that Portugal, Spain, England, and France founded their first establishments in Asia, Africa, and

America. The development of commerce and exploitation of colonies necessitate the creation of large navies.

All the grand personages who directed the foreign policies of France in the past—Louis XI, Henri IV, Richelieu, and Colbert—acted on the policy that commerce and navigation constituted the most solid elements of prosperity and power of a nation, and are one and inseparable.

Imbued with the same principles, nations which undertake overseas enterprises and organize fleets (which alone are capable of preserving their colonial domains) defend their lines of communication, ports, and commerce. Hence, between nations, a new 100 years' war is being engaged in for domination of the seas, the principal phases of which mark the victory or ruin of nations so engaged. The problem of the "sea" has varied little for three centuries; in its essential principles it has remained what it was.

To-day, as in the past, it is for nations to exploit, in a legitimate way, the maritime domain which is, by nature, an international domain. This, in order to guard their economic liberties and assure their securities.

The geographic position of nations is immutable. From these positions depend, in a large measure, their independence and their prosperity. The aspirations and obligations of maritime nations are in the Twentieth Century practically the same as in former centuries. They are only more extended because new nations, young, strong, and ambitious, have sprung up and are rightly claiming their share in the control of the seas. The "sea" has penetrated more profoundly into the lives of nations, and has become the capital factor in creating, developing, and conserving wealth and political power.

The "sea" is the key to the world.

All thoughts of domination and conquest should be banished from naval programs. Each nation should state loyally and clearly what it wants and why it wants it. By such a procedure, only, will all misunderstandings, which are the origin of all international complications, disappear.

France conforms rigorously to this principle. She gives proof of this in her naval policy of moderation. France is only building new units, both in number and type, to strictly protect her vital interests. These units, it is true, have remarkable nautical qualities and compare with the most modern types of other navies. But no one thinks of finding fault with us. We have not as yet caught up with lost time during the war. We know that during the war our navy yards abandoned ship building and concentrated on the manufacture of war material for the French and allied armies. France was not able to replace any of her naval losses during the war—losses which were next to those of England. During this time our allies and our friends, utilizing the enormous resources at their disposition, laid down ships of all tonnages and types. France has never regretted it because each new unit increased the strength of the Allies. However, the French Navy found itself in a critical condition at the termination of the war. It was the duty of France to reconstitute her naval forces.

The importance of this duty can only be measured by the length of her maritime routes which are next in importance after those of England. The importance of our colonial possessions assigns us a rôle which we can not shirk without compromising the international naval equilibrium to which is linked the maintenance of the world peace.

NOTE.—The rejuvenation of the French Navy of late years is one of the most interesting of postwar naval phenomena. The navy is being advertised and fostered in France as never before in many years. This general fact is well illustrated by the French building program, the foreign cruises of naval units, and French dislike of limitation of naval armament.—Ed.

B. AERONAUTICAL

1. Besson seaplane.

An interesting exhibit at the 1926 aviation show, from a novel point of view, was the small folding seaplane, the Besson *MB–35*.

At periodical intervals during the day while this plane was being exhibited it was hauled out of its box and assembled then demounted and housed again as a demonstration to onlookers of the rapidity with which this operation could be performed. This cycle was observed to require about 12 minutes. The box in which this plane was housed was of trapezoidal shape, measuring 19.8 feet in length, 6.1 feet in height, and 4.6 feet in width. There is sufficient clearance to permit a mechanic to work on the plane or engine when the machine is housed.

This plane was especially designed for service as a school or practice plane on small vessels, but it is considered as being suited for military purposes aboard light surface vessels and submarines.

Provision is made for mounting wheels on the housing box so that it may be towed behind an automobile.

This plane has also been designed to provide for launching from a catapult.

The manufacturer looks forward to a large use of these planes in the French colonies, and he stated that a Canadian company owning large tracts of forest lands is negotiating with him for quite a large order of these planes for patrol and photographic work.

WINGS

This seaplane is of monoplane construction, with the wings mounted on a level somewhat below the pilot's seat in the fuselage. There is a small, dihedral angle.

The wings are rectangular in shape, each with a spread of 13.5 feet, making a total wing spread of 29.6 feet. The depth width is 5.6 feet. The ailerons are rather narrow and extend the full length of the wings. They are not compensated. The structure of the wings consist of two longeron tubes joined to the lower part of the fuselage and fastened also to the pontoons by means of two oblique struts, which consist of round steel tubes covered with a wooden sheathing.

FUSELAGE

The fuselage is of rectangular shape. It measures about 3 feet in width at its widest part and is constructed of ribs joined by four longerons. The sides are covered with plywood, with the exception of the forward part, on which the motor frame is mounted, which is of metallic construction.

The pilot's seat is mounted in the forward part and to the left-hand side of the fuselage, almost on a line with the leading edge of the wings. The observer's seat is installed behind the pilot and somewhat to the right of him. The floor of the observer's seat is equipped with a special door, the operation of which is controlled by the pilot. This permits the taking of views with a photographic apparatus, 20 inches square, installed in the interior of the fuselage on two detachable supports.

By means of fastenings installed the seaplane can be readily hoisted on board of a ship.

The horizontal elevators (empennage) are joined directly to the fuselage. They are braced on each side by struts of steel tubes. This empennage consists of a fixed plane, which can be adjusted as desired, and two noncompensated elevators.

The vertical empennage is attached to the stern post, on which it turns, serving as a rudder.

MOTOR PLANT

The Besson seaplane is equipped with a Salmson A. C. 9 motor, nine-cylinder, air-cooled, star-shaped 120 horsepower, 1,800 revolutions per minute. The metallic cover of the front of the fuselage is removable so as to permit the mechanic to have easy access to all the parts installed behind the motor. A Claudel carburetor is used the cover of which is also demountable.

The gasoline tank has a capacity of 19 gallons and is installed behind the pilot. An additional gasoline tank of 23 gallons can be installed in place of the passenger's seat and is connected with the front tank by a special piping and valve.

The lubricating oil tank is mounted behind the motor above the magnetos. The seaplane is equipped with a Saintin carbureted air-motor starter.

PONTOONS

The seaplane is equipped with two pontoons, mounted in catamaran form. They measure 13 feet in length and 20 inches in width. They are constructed of oak, spruce, and birch plywood. They are four partitions, which divide them into five water-tight compartments. Each compartment has a door, by which it can be inspected.

C. MISCELLANEOUS

1. The "Precision Moderne" and the Le Prieur mount.

The quadruple gun mount described briefly below is a development of the Le Prieur mount.

The mount is designed to carry four 13-millimeter (0.51 inch) Hotchkiss antiaircraft machine guns and is fitted with the Le Prieur corrector. A quadruple-type gun mount is now under construction and Mr. Le Prieur expects it to be ready for test in about three months.

The "Precision Moderne," financed no doubt largely by the Hotchkiss Co., is mainly concerned with the manufacture of Le Prieur instruments of one type or another. The company has been in existence only about five years, and until recently has not been on a paying basis. It appears that the French Navy is beginning to use the Le Prieur instruments largely, and several big orders have recently been given. The shops appear to be running at near full capacity just now, and it was estimated that about 200 workmen are employed.

Mr. Le Prieur at present is giving most attention to his machine-gun mount and antiaircraft material in general. In fact, the great amount of interest and study being given to this problem is met with on all sides. Several firms are busily engaged in developing apparatus to satisfactorily solve the problem. Mr. Le Prieur was asked how he was progressing with his "conjugateur" for antiaircraft work and replied that it was still in the design stage. Past reports would indicate that it was in design three years ago. The French Navy has not satisfactorily solved the problem and is still trying to develop a satisfactory fire-control instrument. It prefers a gun of 3-inch caliber and smaller to a gun larger than 3-inch for antiaircraft work.

In the assembling room were seen a number of "conjugateurs" in various stages of assembly. These were for French destroyers. They have completed 32 instruments and have 20 under manufacture. It is of rugged construction and the workmanship appears to be excellent, but from our point of view seems excessively large and heavy to find a place in a destroyer system.

Another type of this instrument is made larger and heavier than the destroyer type. This instrument embodies certain improvements and is probably one of the special type being developed to include certain ideas advanced by the gunnery school. It seems automatically to combine the functions of average range instrument, range keeper, range converter, and transmitter.

QUADRUPLE HOTCHKISS GUN MOUNT "LE PRIEUR" WITH FOUR 13-MILLIMETER MACHINE GUNS

This gun mount has been so designed as to permit the simultaneous firing of four 13-millimeter Hotchkiss machine guns.

These four machine guns are placed side by side in one single cradle supported by two brackets, rigid, with a movable platform which pivots on a large ball bearing.

This platform also carries the seat for the pointer and the seat for the gunner who operates the corrector.

The pointer can, without it being necessary for him to make any movement and under comfortable conditions, easily follow the displacements of the sighting device from the horizontal up to the zenith. Two hand cranks enable him to accomplish the aiming movements for elevation and train.

Firing of the piece by foot pedals permits either the individual firing of the machine guns or their simultaneous action.

The gunner who operates the corrector places himself behind the pointer, and kneels down on the stand that is fixed to the movable platform.

As each machine gun can fire 450 shots per minute, the quadruple arrangement gives an output of 1,800 shots per minute; and with 20 cartridges per individual loader, the duration of a burst is 2.66 seconds, during which time 80 shots are fired.

As the time necessary for the recharging can be estimated, for each quadruple loader, at three seconds, approximately, the result is that firing presents itself under the form of bursts of 80 cartridges every six seconds, approximately.

The gun mount is designed in order to insure continuity in aiming with a maximum of flexibility. Furthermore, the corrector, which gives a complete and exact solution of the problem of the correction of the displacements of the target during the time of flight, permits the centering on the target of the sheaf of fire, with the maximum of precision.

The 13-millimeter bullet with a steel core constitutes a high-explosive projectile against the vital constructions of the plane (engines, tanks), even for very great ranges.

The concentration of four machine guns on a single mount makes it very simple to handle these guns. The personnel is reduced to a strict minimum and requires three gunners only—a pointer, a gunner for the operation of the corrector, and an assistant gunner for the loading.

GERMANY

A. NAVAL

1. New German cruisers.

Letter	Name	Displacement	Horsepower	Speed	Armament	Radius	Crew
		Tons		*Knots*			
B	Koenigsberg	6,000	65,000	32	9 5.9-inch triple mounts.	About 5,000 miles at 12 knots.	500
C	Not yet launched	6,000	65,000	32	do	do	500
D	do	6,000	65,000	32	6 7.5-inch triple mounts.	do	500

Torpedo armament: Four triple tubes on deck.

NOTE.—A sister ship of the above postwar cruisers, the "Emden," is now on a world cruise. She will visit various United States ports, her itinerary being given in the February "Bulletin."—Ed.

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2. Launching of cruiser "B" at Wilhelmshaven.

Cruiser *B* was launched at Wilhelmshaven recently and given the name *Koenigsburg.*

The report of the launching as given in the Berlin "Vossische Zeitung" is as follows:

Launchings are now such a rarity in the German navy that an event of this nature awakens great interest among the people and those connected in any way with the navy. Accordingly, the launching of the new cruiser *Koenigsberg* was witnessed by at least 10,000 spectators, numbering hundreds of specially invited guests, including members of the Government, Reichstag, the army, and leading personalties in the commercial and industrial world.

Shortly before 11 o'clock Admiral Zenker, the chief of the navy administration, after greeting should 30 members of the former crew of the old *Koenigsberg* which was sunk in East Africa in the war in the Rusidji estuary, went to the platform erected for the christening, accompanied by the mayor of Koenigsberg, Doctor Lohmeyer, the former commander of the first *Koenigsberg.* Vice Admiral Loos (retired), and the latter's wife. Doctor Lohmeyer greeted the cruiser in glowing words of praise, and, after Mrs. Loos had broken the bottle of champagne on the bow of the vessel, the latter slipped rapidly into the water, where she soon rode at anchor, with all flags waving.

After the launching ceremony was over the guests went to the officers' restaurant, where they were welcomed by Admiral Zenker on behalf of the Minister of Defense and the Navy. His talk closed with three cheers for East Prussia and its capital, Koenigsberg.

3. Itinerary of practice cruises.

The following is the itinerary of the spring practice cruises of vessels of the German Navy.

Schleswig Holstein (fleet flagship):

Ferrol	Apr. 2–8.
Porto da Praia	Apr. 16–21.
St. Cruz de Tenerife	Apr. 25–May 2.
La Luz (Las Palmas)	May 2–9.
Madeira	May 10–12.
Horta	May 15–23.
Ponta Delgada	May 24–30.
Lisbon	June 3–10.

Elsass:

Villa Garcia	Apr. 2–8.
Porto Grande	Apr. 16–21.
La Luz	Apr. 25–May 2.
St. Cruz (Tenerife)	May 2–10.
Horta	May 14–23.
Ponta Delgada	May 24–30.
Lisbon	June 3–10.

Hessen:

Ponte Vedra	Apr. 2–8.
Porto Grande	Apr. 16–21.
St. Cruz (Tenerife)	Apr. 25–May 2.
St. Cruz de la Palma	May 2–10.
Horta	May 14–23.
Ponta Delgada	May 24–30.
Lisbon	June 3–10.

Amazone:

Ferrol	Apr. 2–5.
St. Cruz (Tenerife)	Apr. 9–12.
Porto da Praia	Apr. 16–21.
St. Cruz (Tenerife)	Apr. 25–May 2.
La Luz	May 2–9.
Madeira	May 10–12.
Horta	May 15–23.
Ponta Delgada	May 24–30.
Lisbon	June 4–9.

Berlin:

Villa Garcia	Apr. 2–5.
St. Cruz (Tenerife)	Apr. 9–12.
Porto da Praia	Apr. 16–21.
La Luz (Las Palmas)	Apr. 25–May 2.
St. Cruz (Tenerife)	May 2–10.
Horta	May 14–23.
Ponta Delgada	May 24–30.
Lisbon	June 3–10.

Nymphe (flagship of the commander in chief of the Baltic forces):

Ponte Vedra	Apr. 2–5.
St. Cruz (Tenerife)	Apr. 9–12.
Porto Grande	Apr. 16–21.
La Luz (Las Palmas)	Apr. 25–May 2.
St. Cruz de la Palma	May 2–10.
Horta	May 14–23.
Ponta Delgada	May 24–30.
Seville	June 4–9.

NOTE.—Germany is vieing with France in the matter of flag showing cruises. While her ships are not so modern as those of France, her cruises are world wide, while French foreign cruises are more or less confined to European ports. The cruise of the German ship "Berlin," to South America; the "Hamburg," around the world; and the "Emden" around the world, are examples. Such cruises are plainly for a political and commercial purpose. See the following article for further remarks on this subject.—Ed.

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4. Naval activities, 1926.

The two following articles on this subject recently appeared in the German press. They give a very good idea of the extent of German naval activities and the motives underlying these activities.

[From "Deutschland zur See"]

The German Navy is living a quiet existence on the coast, far away from the center of German life, and is devoting itself to the work of reconstruction of German naval power in so far as it is possible under the oppressive shackles of the treaty of Versailles. The present time is so filled with other problems and the absorbing cares of everyday life that for a large part of the population the idea of the navy would be entirely forgotten if from time to time a bluejacket were not encountered on leave and if the moving-picture theaters did not show from time to time pictures of German naval vessels. After the first postwar years were devoted to a simmering down of a rough organization, which had been adapted to the new situation arising as a result of the peace treaty, the years 1921–1924 were devoted to the recommissioning of a number of the older line ships. The personnel of the navy had to be trained into seaworthy crews on these ships. Only after this task was sufficiently accomplished was attention turned to replacing with new ships those old ships whose usefulness was practically at an end. The years 1925–26 were devoted to construction work, and in 1926 the new ships were put into commission. The first new ship of the navy, the cruiser *Emden*, very closely resembles the last cruisers built, the *Leipzig* (5,600 tons) and the *Dresden*, but with the improvements which had been made in the meantime, represents a more modern type, whose slender form is a joy to the eye. The ship is 10 times as long as it is broad. The displacement of 6,000 tons, which was laid down in the peace treaty in 1919, fulfilled all demands at that time for a light cruiser. During the war the German fleet did not number one single cruiser which was larger than 6,000 tons. The celebrated *Emden* during the war was only 3,650 tons, and the oldest small cruiser in the German forces which took part in the Battle of Jutland was only 2,700 tons. However, in the postwar years all ideas and demands have changed with lightninglike rapidity, as so often happens in

technical things. The Washington conference established a displacement of 10,000 tons as the maximum limit for cruisers. These ships already surpass the class of the small (unprotected) cruiser and approach more the type of the armored cruiser. However, through the terms of the treaty, Germany is held down to the 6,000-ton cruiser. Even though a 6,000-ton cruiser is unable to compete in battle with a 10,000-ton cruiser, the idea is quite wrong of qualifying the 6,000-ton cruiser as useless on that score. Germany is in possession of an especially valuable treasure store of technical and military experiences from the war which will be employed in the new ships, so that, commensurate with the tasks devolving on their type, they will represent an admirable achievement. The present new constructions are especially admirable for representing Germany abroad. They will bring other countries a perfect and highly commendatory picture of the efficiency of German industry and will in that way do more for furthering Germany's economic situation than the most eloquent statistics and reports.

The cruiser *Emden* was launched early in 1925, was placed in commission in the autumn, finished her trial trips during the winter, and in the spring of 1926 was assigned to the fleet. In the autumn of 1926 the cruiser left on a world cruise, carrying 100 naval cadets. It relieved the cruiser *Hamburg*, which is soon to return also from a world cruise. It has now been from 10 to 12 years since any German naval vessel has visited practically all of the ports which have been visited by these cruisers. The reports of the commanders of the ships, the diplomatic representatives and German colonies abroad are all unanimous in voicing the great and enduring impression made by the visit of these naval vessels, the importance of which is so easily underestimated at home. It is of great advantage to the country that the navy can carry out the foreign cruises of the training cruisers without any special appropriations having to be made from Government funds. The regular ships of the navy are engaged all year long in practice cruises, and therefore actually spend more days at sea than the foreign cruisers, which from time to time spend several days in port while on their cruises. It naturally costs no more for fuel to cruise about abroad than at home; in fact, fuel can often be obtained more cheaply abroad than at home. Foreign cruises, whose main object is the training of personnel along nautical and navigational lines, will therefore be carried out by the navy regularly in the future, and in recent years this practice has been extended to include the capital ships of the navy. In the summer of 1924 the battleships made a cruise to northern Spain, and in the summer of 1925 all the fleet went to Norway. Since the Scandinavian ports have very often been visited by German naval vessels since the war and it was feared that too great a strain might

be laid on the residents there, the fleet left in 1926 for a cruise in the Mediterranean, the Balearic Islands, and eastern Spain. At the close of 1926 the battleship *Hannover* made a cruise to the west African islands, Spain, and Holland, returning in December.

The following ports were visited by German naval vessels during 1926.

Europe:
Sweden—Sundsvall, Hernoesand, Gefle, Slite, Oernskoldvik .
Norway—Bergen, Merok, Tromsoe, Bardoe, Hammerfest, Harstad, Fitje.
Denmark—Copenhagen, Skagen.
Iceland—Reykjavik.
Latvia—Riga.
Finland—Helsingfors.
Russia—Alexandrowsk, Jokanski Bay.
Holland—Amsterdam, Den Helder, Ymuiden.
England—Grimsby.
Balearic Islands—Palma-Mallorca, Port Mahon-Menorce.
Spain—Cadiz, Pontevedra, Cartagena, Barcelona, Malaga, Vigo, Villagarcia, La Coruna.
Africa:
South Africa—Luederitzbucht, Walfisch Bay, Cape Town.
Portuguese West Africa—Sao Paolo de Loanda, Mossamedes, Great Fish Bay, Espiegle Bay.
West African Islands—Madeira, Gran Canaria, Lamzarote, Teneriffe, Palma, St. Vincent, Sao Thiago.
America:
United States—San Francisco, Los Angeles.
Guatemala—San Jose.
San Salvador—La Libertad.
Honduras—Amapala, La Union.
Canal Zone—Colon, Balboa.
Brazil—Rio de Janeiro, Bahia, Itajahy.
Argentine—Buenos Aires, Mar del Plata.
Uruguay—Montevideo.
Chile—Punta Arenas.
West Indies—St. Vincent on the Virgin Islands.
Atlantic Islands: St. Helena, Ascension.
Pacific Islands: Honolulu, Hilo.
Antarctic Islands: Deception (South Shetlands), Grytviken, Moltke Harbor (South Georgia).

The greater part of these ports have been visited by the German school cruisers, *Berlin*, *Hamburg*, and *Emden*, and a not inconsiderable portion fall to the German Atlantic expedition which is being carried out by the survey ship *Meteor*. Especially noteworthy in this list is the first visit to England and to Russia. Grimsby was visited by the German fishery boat *Zieten*, which, in accordance with an international agreement between all the countries on the North Sea, can visit any ports in these countries unannounced, while the ordinary naval vessels must be announced through diplomatic channels. Alexandrowsk was visited by the same ship during a bio-

logical research cruise in the waters north of Scandinavia and Russia. This visit was made in response to the express desire of the Russian Government. This fishery expedition and the German Atlantic expedition are the principal fields in which the navy has worked in the year 1926 in the interest of economics.

The year just past represented one of work and successful achievement for the navy. This year the second and third cruisers will be launched and the first of the new torpedo half flotillas will be commissioned. Other replacement constructions rendered necessary by the great deterioration of the old warships so as not to endanger the lives of the crews will then be laid down on the slips in Wilhelmshaven and Kiel.

[From "Marine Rundschau"]

The year 1926 was one of accomplishment and labor for the German Navy. If the principal achievements of the preceding years, besides the general development of the personnel and organization, were the starting and completion of the first replacement ships, the year that has just closed brought the commissioning of these replacement ships, and as a second accomplishment, the extension of foreign cruises of the naval vessels. The first new construction of the navy, the cruiser *Emden*, passed out of her trial status and into that of an integral part of the fleet. The summer was employed in training the crew. Numerous trips were made to the North and Baltic Seas, various German ports being visited en route. The merchant marine must see that the navy is bent on rising again to a position commensurate with that of German overseas commerce, and that they are not going to stand still and watch their overobsolete material grow more and more out of date. Visits were made to the lost Province of East Prussia, to Hamburg, Stettin, Luebeck, and Emden. In the autumn the new cruiser left the fleet to be used as a training cruiser under the inspection of the training department. The construction of cruiser *B*, which was approved in 1925, is progressing so that its launching at the yards in Wilhelmshaven may be expected to take place very shortly. The cruisers *C* and *D*, approved in 1926, are under construction in Wilhelmshaven and Kiel. The navy will soon have three more new cruisers.

The torpedo boat replacement is also progressing admirably. In the spring of 1926 the torpedo boat *Moewe* (approved in 1924) was launched in Wilhelmshaven. The torpedo boats *Greif*, *Albatross*, *Condor*, *Falke*, and *Seeadler*, which were approved in 1925, were launched during the summer and autumn at the same yards. The names of the cruisers, like those of the torpedo boats, are taken from the famous ships of the former German Navy. The torpedo boat *Moewe* was commissioned in the summer of 1926 and is at present

(December 20) engaged in making trial trips, which up to now have not been altogether successful. A very serious accident occurred on one occasion, when, owing to the bursting of a steam pipe in the engine room, six men were killed or so severely injured that they subsequently died from their injuries. In 1926 six more large torpedo boats and a small torpedo boat were approved. Therefore within a short time the German Navy will have a complete flotilla of twelve 800-ton torpedo boats. As can be seen from the above account, the question of replacement constructions, as far as cruisers and torpedo boats are concerned, may be designated as satisfactory. The question of battleship replacement is still unsettled, the peace treaty setting a limit displacement of 10,000 tons for this type of ship.

The foreign cruises of the navy have also been satisfactory during the past year. In the spring the training cruiser *Berlin*, after sailing around South America, returned to home waters, and at the same time the training cruiser *Hamburg* started westward on a trip around the world. In the autumn the training cruiser *Emden* started eastward, also on a world cruise. The ships of the fleet command, which are largely occupied in home waters, made a long practice cruise in the Mediterranean, touching the Balearic Islands and several continental ports in Spain. At the end of the year the battleship *Hannover* left for a two months' trip to Spain, the west African islands, and Holland. This closed the use of this battleship in the active service of the navy, for soon after its return the *Hannover* was put out of commission and replaced by the *Schlesien*. The two torpedo-boat flotillas of the navy, whose cruising radius does not permit them to undertake any long cruises, visited several Scandinavian ports this year, as they did last year. Next year the navy will keep up the foreign cruises of the school cruisers and the ships of the fleet to about the same extent as now. Experience has shown that the foreign cruises are very valuable in many ways. Nearly everywhere where German naval vessels visited after the 10-year pause, a change for the better was noted in the attitude toward Germany since the time of the war and the change of government. German colonies abroad, split up and weakened, began again to coordinate and grow more courageous and gained in influence and prestige. From numerous places abroad, both near by and at greater distances, requests were made through diplomatic channels for the visit of German naval vessels. Up to now only a very few of these requests could be met. However, in the future every effort will be made to take these requests into consideration when it is compatible with the military necessities which mainly dictate the route. In a military sense, the foreign cruises have fulfilled their purpose. Apart

from the training provided by the different navigational and meteorological conditions of the ocean, it has been invaluable for the technical personnel to operate the ship's machinery in long uninterrupted operation. It is only after long cruises of many days' duration that the real difficulties appear in the technical manipulation of the ship.

Also in a cultural and economic way, the navy has done much along the lines of its previous efforts. Among the cultural tasks, the German Atlantic expedition is paramount, the work of which has now lasted through the entire year in the waters of the southern Atlantic. As far as can be now foreseen, the *Meteor* should complete her work during the summer of 1927 and return home, when work can be continued on the tremendous amount of material gathered on the expedition. The principal work of the navy in an economic way is that of fishery protection.

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5. "Bauer-Wach" system of propulsion.

In the spring of 1926 a new steam engine was constructed at the Tecklenborg shipyard in Wesermuende, near Bremen. During the intervening period of a year, tests have been carried out with this engine which have been so satisfactory to the builders that it is now commonly believed in local shipping circles that the future propulsion of ocean-going vessels will not be by heavy oil engines of the Diesel type, but will continue to be steam engines, utilizing that motive power in a more complete manner than has been done in the past.

The first vessel which was fitted with this new engine, the distinctive feature of which is an exhaust turbine, was the steam trawler *Sirius*, which has been in the service of its owners since September 9, 1926, and has already made three cruises. According to the statement of the engine builders, this vessel developed, with 55 per cent steam admission into the high-pressure cylinder, the same speed as it would attain with 71 per cent steam admission without the exhaust steam turbine; that is to say, that without this turbine the vessel would consume about 28 per cent more coal. It is also stated that this vessel has proven that the new device prevents racing of the propellers in heavy weather, by means of the gear and oil clutch. Another trawler with this exhaust turbine is now about completed.

The North German Lloyd Steamship Co. has had this turbine placed on their steamship *Elberfeld*, of 9,350 tons dead weight. The Tecklenborg Co. reports that the existing triple expansion engine of

3,200 indicated horsepower now develops, as a unit with the exhaust turbine, 4,000 indicated horsepower with the same consumption of coal. After the completion of the installation work on October 16, 1926, the vessel sailed for Sweden without cargo, and tests were made of the efficiency of the turbine. The Tecklenborg Co. reports that an increase in efficiency was obtained amounting to 29.6 per cent.

The Hansa Line has just had its steamship *Ockenfels*, of 11,355 tons dead weight, equipped with this exhaust steam turbine. The *Ockenfels* is on the service to India, and it is stated that tests taken on the run to the Mediterranean fully confirmed the results obtained with the steamship *Elberfeld*.

The Tecklenborg Co. reports that the North German Lloyd and the Hansa Line have decided to supply this new device to all their new tonnage.

There follows an article prepared by the Tecklenborg Co., in regard to this turbine, which is known as the "Bauer-Wach System."

The Tecklenborg Co. reports that 10 steamers have been or are being converted to this new system, each vessel being between 5,500 and 11,000 dead-weight tons, with the exception of one small one belonging to an American company, and that 15 orders have been received for the installation of this turbine in new tonnage of various sizes from 2,700 dead-weight tons up to 12,000, with the exception of the two trawlers previously mentioned. The North German Lloyd Steamship Co. has ordered it for all five of its new 12,000-ton (dead weight) freight vessels, the Hansa for all four of its new 11,500-ton vessels, and the Neptune Line for its four 2,700-ton vessels.

DESCRIPTION OF SYSTEM

It is generally recognized that one of the major losses in a reciprocating steam engine is its inability to utilize the full expansive properties of the steam in its low-pressure stage as it approaches condenser pressure. The engine is reasonably efficient in its high and intermediate stages, but in the low-pressure cylinder there is always a distinct step down in pressure at the moment of opening of the slide valve to exhaust into the condenser. The reason for this is that the low-pressure cylinder is never large enough to give the steam the volume it requires to expand.

The diameters of low-pressure cylinders are dictated by practical considerations of bulk and piston weight and frequently by the desirability of maintaining equal crank-shaft centers. As a result of these limitations of diameter, it is found that the maintenance of anything higher than about 25 inches or, say, about 85 per cent of vacuum in the condenser is of no value, as the very slight increase in power gained is more than offset by the additional work required to maintain the higher vacuum and the loss of heat in the condensate return.

In the turbine conditions are entirely different, and no difficulty is experienced in utilizing the expansive properties of steam up to 29 inches or, say, about 96 per cent vacuum.

In a good triple-expansion installation running with, say, 15.5 atmospheres absolute pressure and superheating to 280° C., the energy available expanding down to 85 per cent vacuum is 188 calories. At an efficiency of 65 per cent, cor-

responding with a steam consumption of 5.18 kilos per horsepower i h, there are 188 × 0.65 equals 122 calories converted into power and 66 calories lost. If we could expand down to about 96 per cent vacuum, or 29 inches, there would be 43 additional calories available; and taking an exhaust turbine's efficiency at 70 per cent, about 30 of these could be utilized, thereby adding to the plant some 24.5 per cent more power.

The "Bauer-Wach" system contemplates the introduction into the thrust recess (or an extension of it) of a geared turbine suitably designed to take this exhaust steam and expand it down to about 29 inches vacuum, delivering the additional power to the existing line shafting.

In an experimental plant it was found that the 24.5 per cent, as calculated above, could be materially increased by backing up the steam in the reciprocating engine to a point where the turbine could handle the steam to better advantage than could the low-pressure cylinder. In other words, instead of taking the release pressure as it would normally be, raise it to, say, 0.4 atmospheres absolute and the exhaust turbine will get more out of it than the low-pressure cylinder could. Under these conditions increased efficiencies as high as 35 per cent have been attained.

The addition of the turbine unit is proposed purely as an economy measure. It is intended to be thrown into action after maneuvering is finished and the vessel is well away to sea; therefore reversal of the turbine is not contemplated.

It is necessary, however, to provide a steam-distributing valve for by-passing the steam to the condenser when changing over, also to provide a nonpositive clutch which can be thrown in gradually to allow the turbine to pick up its load. This is done by the use of a special oil coupling, the gradual engagement of which is effected by the introduction of oil under pressure.

In order to engage the exhaust-steam turbine during the service of the reciprocating engine an oil-distributing valve is to be handled, which leads the pressure oil into the oil clutch. When the oil clutch is filled, pressure is created in the oil piping to the steam-distributing valve, thus allowing the steam formerly directed to the condenser only access to the exhaust-steam turbine. The first acceleration of the gearing is effected by the reciprocating engine. This fact does not involve any disadvantage; instead, it offers great safety as the steam-distributing valve is only reversed when the act of coupling is fully completed. It is to be pointed out that the completed coupling act is the direct cause of reversion of the steam to the exhaust-steam turbine. This arrangement excludes the racing of the exhaust-steam turbine. On reversing of the engine, the oil-distributing valve automatically draws away the oil pressure, so that the steam-distributing valve closes the steam admittance to the turbine, leading the steam to the condenser, and then the release of the oil clutch is effected.

The oil-distributing valve is mechanically connected to the shaft so that, on reversing the reciprocating engine, the oil-distributing valve is automatically reversed and needs no attention of the engineer. Furthermore, the connection to the shaft allows the exhaust-steam turbine to be engaged and disengaged at any time that the reciprocating engine is going ahead.

To minimize the encroachment on cargo space due to the enlargement of the thrust recess for the accommodation of the exhaust turbine, it is proposed that wherever the multicollar, old-style thrust is in use, to change this to a single-collar thrust of the Michel or Kingsbury type.

In regard to overloading the existing line shafting with the increased power it must be borne in mind that the shaft is designed to withstand maximum

stresses, in the first place, which in reciprocating engines are considerably higher than the mean average driving torque. As the turbine diverts some of the power normally delivered by the reciprocating engine in intermittent impulses and substitutes the steady, even flow of power characteristic of a turbine, the overloading of the line shaft is not as great as would at first sight appear. Moreover, a liberal factor of safety is always used to provide against the abnormal stresses of racing, and, bearing these points in mind, it is expected that no increase in shaft strength will be demanded by the classification societies. In this connection the German Lloyd has already signified its willingness to give the matter favorable consideration.

In conclusion the "Bauer-Wach" system is designed to overcome a serious loss in efficiency which has long been known to exist. The inefficiency it sets out to rectify is generally conceded and is beyond argument. The method of improving the conditions is herein outlined and is supported by an actual test bed installation, particulars of trials on which are given here.

B. AERONAUTICAL

1. Are airships military weapons?

The following article, under this title, was recently published in the German aeronautical magazine, "Luftfahrt." Its author is Dr. Gustav Wember.

The idea that the Zeppelin airships still represent an aeronautical weapon, or at least in the event of war could be used as such, is no longer justified, as the airships are completely played out as aeronautical weapons. This question has been the subject of heated debate and much has been written thereon both in Germany and in other countries, and the pen has not always been guided by the hand of an expert on the subject. This means very little to the individual holding the one or the other point of view; but where broad masses of the people are concerned, it can give rise to more or less false conceptions so that the impression is given as though in the unconscious mind of the individual there is still the shadow of a doubt regarding the correctness of the above statement.

An aeronautical expert, to say nothing of the former military aviators who are thoroughly familiar with every detail connected with aeronautics, air battles, and antiaircraft defense by reason of their own experience, will scarcely agree that the Zeppelin airships might still be considered as military weapons in a land or naval battle. As far as regards their uselessness in land warfare, there is no longer any difference of opinion inasmuch as the World War furnished sufficient proof of the fact. The only moot question still is that of the employment of air cruisers in a naval battle. However, there can no longer be any doubt on this score either, for even as the airships used for observation purposes on land would soon fall victims of the antiaircraft guns, or above all to the pursuit planes, even so would those airships dispatched on scouting expeditions in naval warfare. The modern navies of all the powers are now equipped

with the most technically perfect long-range antibaloon and antiaircraft guns. Even granting the case that antiaircraft guns are useless against airships, owing to the range, naval pursuit planes would immediately take off from an airplane carrier and give chase to the dirigible. Even assuming that the distance from ship to airship amounts to 100 miles or more—this is only presupposing extremely favorable observation conditions—the destruction of the airship can be definitely counted on as modern pursuit planes are so superior to airships in technical flight properties that they can not be even approximately offset through other advantages of the airship (such, for example, as greater cruising radius, long-range defensive armament, etc.). The land and sea pursuit planes of various powers now attain speeds of over 250 miles per hour with their 400-horsepower and even stronger motors. It is a well-known fact that this speed is increased still more in gliding and diving flights when being chased by pursuit planes. By making daring use of a few pursuit planes, a Zeppelin cruiser, whose speed we can assume to be 85 to 100 miles per hour, would soon be totally destroyed. The great advantage possessed by the pursuit plane as a result of its great resistance to strains and stresses both in climbing and dropping, the slight danger zone as a result of the small target surface possessed by the pursuit plane as compared with the Zeppelin cruiser: these will be left out of consideration entirely. In the last analysis, the only remaining employment of the Zeppelin cruiser is that of guard duty, with no enemy forces being sighted on the scouting flights. However, this activity is of too slight importance to consider the airship as a military weapon as a result of it.

This slight explanation should suffice amply to show that there can no longer be any question of employing the airship in war—regardless of the manner of employment. Airships may only be used on peaceful missions, and therefore the world in general must take an interest in the further development of the German airship industry.

Greater weight than heretofore must be laid on the dissemination of this idea in Germany, and stronger expression must be given abroad of our determination to uphold the work of Count Zeppelin, and this by each individual, no matter what his political proclivities or the social class to which he belongs, for it is only in this way that Germany can fulfill the duties devolving on her in the scope of the European air service and outside the confines of Europe, as the result of her leading technical position in the province of airship construction.

NOTE.—The purpose of this propaganda on Germany's part is apparent. The Versailles restrictions on her Zeppelin building have laid heavily upon her.—Ed.

2. The Hughershoff aerocartograph.

[Source: German press]

The use of airplanes for surveying purposes has gained in importance more and more during recent years. There is still almost 90 per cent of the earth's surface which has not been surveyed, or very incompletely so. The old terrestrial methods of surveying are too slow to ever finish the work still to be done along this line. The tempo of our age is such that by the time a map is finished it is already partially out of date. The contour and appearance of the surface of the earth is often changed altogether within a very short space of time through natural changes, or through artificial plants such as streets, railroads, settlements, reclaiming of swamps and waste lands, dikes, etc., so that it was necessary to find some means of a technical nature which would enable survey work to keep pace with the march of events and changes. It is therefore not to be wondered at that plans were made to use aircraft for surveying purposes immediatly after the first flight had been made. Scientists of the different countries devoted their efforts to mastering this question. Instruments were developed in Germany, even during the war, by means of which it was possible to construct maps from the photographs made from airplanes. Soon after the war, the well-known professor of geodesy, Dr. R. Hugershoff, of Dresden, developed an apparatus with which it was possible to make charts mechanically from air measurements and photographs. This apparatus, known as the autocartograph, has since been tested in different countries and has given satisfaction everywhere. According to a statement of the magistrate of the city of Breslau, it was possible with this instrument to draw up a map in the scale of 1:1,500 in about one-eighth of the time and at only one-fifth of the cost which would have been required for the methods in use formerly. This ratio will be even more favorable for air photogrammetry if the terrain is mountainous or otherwise inaccessible.

The accuracy of this instrument conforms in every way with the requirements for maps made according to common methods. A few years after the war the firm of Zeiss brought out the stereoplanigraph, and in Switzerland we had the Wild autograph, which, however, at present can only be used for certain purposes. Otherwise there is no instrument in any foreign country which can do the work of the autocartograph or the stereoplanigraph. For survey work we still lacked a small light instrument which is not bound to a definite place but can be moved about as necessary. Great interest was therefore aroused when the aerocartograph of Doctor Hugershoff was exhibited in Berlin in November, 1926, on the occasion of the International Photogrammetric Exhibition in Berlin. This is an instrument which,

on account of its light weight of only 536 pounds and its dimensions of 31 by 43 by 27 inches, can be easily transported and furnishes in the shortest possible period of time an exact survey of large tracts of land. The aerocartograph is based on the familiar principle of the autocartograph and enables the construction of maps from aerial photographs taken either vertically or diagonally. It is made for the focal distances from 5 to 12 inches and for rectangular and square plates of 2.5 to 7 inches. The drawing surface is on the inside of the apparatus; but, similar to the autocartograph, it has a drawing drum directly in front of the draftman's eyes. It can be operated by one man. The aerocartograph also has a device which makes it possible to dispense with triangulation in districts where the fixed points are at a distance of 30 miles or more. It is this property which makes it so admirably fitted for use in colonial survey work, etc. It is anticipated that this simple apparatus will meet with great success very soon all over the world.

C. MISCELLANEOUS

1. The tragedy of the submarines.

By Dr. Wilhelm Struve

Will our submarines succeed before the Americans arrive, or will they not? We were unceasingly pursued by this and other similar questions after that day in early February, 1917, when the unrestricted submarine campaign was officially declared. The campaign had been decided at chief headquarters at Pless: the Reichstag not being informed of the resolution until after it had been put into execution. Count Bernsdorff's warnings were disregarded and Bethmann's efforts proved useless in the face of the admiralty's argument that owing to technical considerations it was impossible to communicate new orders to the submarines out at sea. At least that was the claim made.

The naval command had planned out their own submarine campaign by which they hoped to bring the war to a speedy crisis. The important point was: Had they also made the necessary preparations? Did we possess an adequate number of submarines?

The answer to this question may be found in the following extracts from speeches held in the budget commission in 1916 and 1917:

The circumstances of the moment demand the production of as many submarines as can possibly be furnished by German shipyards and by the auxiliary industry of 1917–18. Any carelessness in the fulfillment of this requirement would be an unpardonable crime against our country. We are as yet far from having reached our highest capacity of production, and there is no hope

of our doing so unless the Government resolves upon immediate and decisive measures. No action of this sort can be expected from our naval command. In January, 1917, a statement was made at Blohm and Voss to the effect that no more submarines will be ordered. Vice Admiral Kraft has made it clear to me that an increased production of submarines would involve too great a burden upon the peace appropriations for the expenses of vessels in commission. The Navy Department has already discussed the question of designing a special port as burial place for our present submarines.

I communicated all this to the Secretary of State in January, 1917, whereupon he answered that he advised the committee to try and imagine the possibilities of organization and promotion in a navy consisting only of submarines and airships instead of warships. How could we get a sufficient number of young officers for the submarines if we could not offer them any prospects of service later on? Such were the considerations which influenced the Navy Department.

In answer to the objection that 45 new submarines had been ordered in February, 1917, in spite of the prevailing opinion that the war would be concluded in the autumn of that year, I informed the committee that on February 13 Admiral Kraft had notified our three chief shipyards of the proposed cancellation of 15 submarines out of the above-mentioned order, in view of recent apprehensions. The shipyards had protested very energetically, but they had finally been obliged to agree to sell the 15 submarines abroad in the event of the cessation of the war before the boats had been delivered. The order had been given during Admiral Kraft's absence by his representative. Kraft resigned immediately afterwards, but much time had been lost and the most favorable moment for construction was past.

Admiral Tirpitz never took adequate measures to supplement our submarine fleet, having always been an adversary of submarine warfare. He did not order any new boats, either at the beginning of the war or after Weddigen's exploit in September 9, 1914, or after his interview with the American correspondent, Karl von Wiegand, at a later date of the same year. By this latter action he publicly advertised Germany's intention of resorting to unrestricted submarine warfare, turning this nonexistent weapon with great dexterity and energy against the German Government and against his old friend Bethmann, and forever destroying the unanimity of German patriotic enthusiasm.

It is sufficient to note the fact that not a single seagoing submarine was ordered between September, 1915, and May, 1916; the same omission being committed with regard to the smaller craft known as the B submarines. After Tirpitz's resignation, Bethmann succeeded in persuading the Navy Department of the necessity of building new submarines, with the result that a greater number of orders for

construction were issued in one day than had been done by Tirpitz during the whole year of 1915.

The numbers ordered did not, however, come up to the maximum of what our building yards were able and willing to produce. In the spring of 1916 the Vulcan, Weser, Germania, and Blohm & Voss shipyards offered to deliver 102 medium and 37 large submarines. In the middle of May, the Weser proposed to build a few extra medium boats in order to fill up the intervals between the deliveries. The boats were to be ready between December, 1916, and January, 1917. The Weser's offer was refused. A similar proposal was made by the Vulcan, which asked for supplementary orders for B submarines, to be delivered in the beginning of 1917, suggesting that the boats could be delivered more speedily and of superior quality if they were ordered in series. The Vulcan's proposal was also refused.

On July 17, 1916, the Navy Department issued the following statement: "No more orders for submarines will be issued for the present. A pause is necessary in order to enable the shipyards to deliver the hitherto-ordered material in a shorter time and in order to allow them to undertake unforeseen work." This was the fatal mistake, whose source may be traced back to the battle of Skagerrak.

In September, 1916, five submarines were ordered at Blohm & Voss and eight B submarines at the Weser. Both concerns had to furnish a formal statement that these orders would not interfere with the construction of the cruisers.

In October, the Weser complained of difficulties in obtaining ship material and asked to be informed whether they would be charged with the construction of the four proposed new submarines and whether they might order the necessary materials at once.

In February, 1917, the Howald Works in Kiel offered to build three boats and the Schichau and Imperial yards in Dantzig, two boats each. Both offers were refused. In May, 1917, the Imperial yards in Dantzig once more urgently insisted upon the necessity of new submarines under the plea that much time had already been lost and that in order to avoid discharging numbers of workmen the works must obtain new orders no later than the middle of June. The history of the Imperial yards in Dantzig is very instructive. It had delivered its first submarine on July 18, 1908, and had worked incessantly ever since; but in spite of its well-known efficiency, it furnished no more than 20 submarines during the whole course of the war. Out of this number two (the *U–43* and *U–44*) were begun in 1913. Not a single boat was delivered from May to October, 1915, and from July to November, 1916.

The same deficiencies and irregularities prevailed in all the orders given by the Navy Department. Long pauses during which not a

single boat was delivered occurred repeatedly in all the shipyards, the longest and most generally prevailing interval of nonproduction coinciding with the beginning of the submarine campaign in the first half of 1917. Our submarine construction proved most deficient just at the moment when it was most needed.

Not a single boat was delivered from January to May, 1917, by Blohm & Voss, from February to May by the Vulcan, during June by the Germania Werft, and during July by the Imperial yards in Danzig. Three submarines were put into commission in February, 1917.

That was the condition in which we began our submarine campaign. The complete absence of coordination is evidenced by the fact that the extensive Schichau works only had orders for 2 boats at the time when the Germania Werft was building 9 different types, and the Weser Co. 8.

The excellent results obtained by serial construction, when it was finally applied after long delay, confirmed the correctness of the viewpoint held from the beginning by the shipbuilding concerns. For instance, the Germania Werft built series of *U–81* and *U–86* and furnished the first boat within 4 months and all the others in 8 months, meaning an average rate of 1 submarine in every two weeks. Blohm & Voss built *UC–65* and *UC–73*; they delivered the first boat in 11 months and the succeeding ones at average intervals of 6 days, furnishing 9 submarines from November 7 to December 24, 1917. The application of serial construction might therefore have afforded the possibility of a yearly construction of 60 submarines by one firm only.

The navy department, however, was averse to serial construction. It was equally backward in taking measures to promote the activities of the auxiliary industries such as motor manufacture, electric works, etc. The military command was finally obliged to interfere. The following is an extract from General Groener's order issued shortly after the beginning of the submarine campaign:

> The repairing of submarines and the manufacture of submarine torpedoes and mines is extremely deficient. Orders for building material have repeatedly been neglected and information is at hand that certain works, especially steel foundries, have refused to accept any orders of that kind. Previously contracted orders for submarine construction have been canceled. In order to remove these deficiencies and after consultation with the chief command of the army, it is ordered that all deliveries of submarine materials, torpedoes, and mines shall rank prior to deliveries for the army.

These facts throw sufficient light upon the course of action pursued by the admiralty and the activities of Admiral von Tirpitz and his subordinates.

NOTE.—The author of the above article is a former member of the Reichstag.—Ed.

2. *German disarmament.*

[Source: German press]

The agreement on the questions of armament and the eastern forts concluded February 1 between the conference of ambassadors and the German delegates has at last put an end to the control exercised on German armaments by the treaty of Versailles. After a delay of 12 months, this day marks the close of the most mortifying chapter in Germany's long list of humiliations. The Allied Control Commission has ceased to exist, and the Military Control Commission having declared itself satisfied with the last German suggestions, the ambassadors' conference has issued an official statement recognizing Germany's fulfillment of all the obligations laid upon her by the treaty of Versailles.

Part 5 of the Versailles treaty, which treats of the details of Germany's disarmament, begins with the words: "In order to create conditions which will conduce to the establishment of a universal limitation of armament in all countries, Germany engages herself to comply exactly with the following regulations concerning her army, navy, and air fleet." The fact of Germany's complete fulfillment of the said regulations has been officially recognized to-day by both the competent organs of the allied states. It will henceforth be the duty of the other States, both of those who fought against us and of those who maintained neutrality, to follow our example. Unless they do so the treaty of Versailles will prove to be no more than a dead letter in so far as it concerns the establishment and maintenance of peace.

The agreement just signed regulates the questions of the eastern fortifications (frontier fortifications) and of the manufacture and export of armament material, but its substance is only known as yet in its general lines. The question of the armament material is regulated by a law drafted by the German Government and the allied military experts in Berlin. The draft was approved to-day by the ambassadors' conference and will be submitted without delay to the Reichstag. The question of the eastern fortifications has been satisfactorily settled on all points, but as yet no final decision has been reached as to whether the agreement shall be expressed in the form of a decision taken by the ambassadors' conference or in that of an interchange of notes between the conference and the German Government. The French view of the matter is stated in the following report:

A frontier zone has been established, between Germany and the allied powers, within which no other fortifications may be erected beyond those stipulated in 1920. The Governments represented in the Interallied Control Commission—namely, France, England, Italy, and Belgium—have nevertheless consented to the maintenance of a certain number of works situated between Koenigsberg

and Loetzen whose defensive character is beyond doubt. All other works constructed since 1920 in the same region or in the locality of Kuestrin and Glogau are to be destroyed by Germany. A special agreement defines the exact meaning of the words, "the maintenance of the permitted works in their present condition," conformably with the sense of article 180. The German Government gives a formal declaration to the effect that no other fortifications exist beyond those which are known to the Allies and that no new fortifications will be constructed.

The line of German fortifications is established as follows in to-day's agreement: In eastern Prussia, a direct line from Koenigsberg to Sensburg (from the point where it leaves the 50-kilometer frontier zone established in article 196 of the Versailles treaty), and from Sensburg to Marienburg (up to the point where it rejoins the 50-kilometer frontier zone). Along the other German frontiers, a direct line from the point where the railway line Dirschau-Konitz-Schneidemuehl-Kuestrin touches German territory to Kuestrin; the left bank of the Oder from Kuestrin to Brieg; the railway line Brieg-Neisse-Kamenz-Glatz-Waldenburg-Goerlitz-Bautzen-Pirna-Koenigsstein, a direct line from Koenigsstein to Hof, the railway line Hof-Neustadt-Regensburg, the left bank of the Danube from Regensburg to Donaueschingen, the railway line from Donaueschingen to Neustadt where it reaches the demilitarized Rhineland zone.

On the basis of this agreement the German Government undertakes to submit to the Reichstag the draft of a law on the question or armament material, prohibiting the export and import of arms and regulating the manufacture and export of items capable of being converted into war material. The draft contains the following articles:

ARTICLE 1. The manufacture, export, and import of war material of all sorts (arms, ammunition, and all species of armament material) is prohibited.

ART. 2. The manufacture and accumulation of, and trading with, war material for the internal uses of the country are prohibited.

ART. 3. The foregoing regulations apply to the following articles: Cannon, mine throwers, machine guns, field guns, carbines, automatic military revolvers, the ammunition pertaining to all these arms, bombs, projectiles and land mines of all sorts, torpedoes, torpedo tubes, anchored and unanchored mines, submarines, periscopes, naval guns and all the instruments pertaining thereto, armor plate, armored towers, tanks and armored motors, ships designed for naval uses, whatever their type or size, boilers and special machinery for naval ships of all sorts, flame, gas, and smoke throwers, all instruments for the preparation and regulation of artillery fire, field kitchens, chemical products for the manufacture of explosives and the plants needed for their manufacture, and all parts of the above enumerated armament materials in so far as they are not applicable to other purposes.

Article 4 enumerates the products falling under article 2, the manufacture and sale of which is only prohibited for internal use.

The prohibition applies mainly to certain types of guns, carriages, uniforms, and leather articles.

Article 5 prohibits the import of the products specified in article 4 and establishes a schedule of the quantities permitted for export.

Articles 6 to 12 contain regulations regarding the application and enforcement of the present law, the manufacture of armament material for the Reichswehr within the limits established by the treaty of Versailles, and the manufacture of chemical products for industrial purposes.

The terms of this agreement bear witness to the absurd exaggerations contained in the allied reports on the subject of German fortifications. The essential point around which the discussions centered for many weeks was the existence of the new fortifications erected since 1920 in front of the forts of Koenigsberg, Loetzen, Glogau, and Kuestrin. The allied reports pictured these works as forming an extensive and powerful system of defensive fortifications designed to strengthen the German eastern frontier line of forts. The recent negotiations, however, have proved beyond doubt that these so-called fortifications consist merely of 88 concrete covers holding 8 men each and distributed as follows: 53 near Koenigsberg, 15 near Loetzen, 5 near Kuestrin and 15 near Glogau, all of them within the limits of the works constructed during the war and subsequently razed after the conclusion of peace.

After protracted and wearisome discussions, the question was finally solved as follows: 7 of the Glogau covers, namely, those on the right bank of the Oder, are to be destroyed; the 8 covers on the left bank may be maintained; the Kuestrin covers are to be destroyed, all of them being situated on the right bank of the Oder; the Loetzen covers may be maintained; 22 of the Koenigsberg covers must be destroyed, 31 may be maintained. This result is due to the efforts of the German delegates. The allies had originally insisted upon the destruction of all the fortifications but, as may be seen from the above, the delegates succeeded in rescuing the greater part, namely 54 out of 88.

Certain concessions have further been obtained in the question of the upkeep of the German forts in their present condition, to the effect that all fortifications built of destructible material, such as timber, earth, or bricks, may be replaced within their present limits by concrete or stone constructions.

However, the most important concession as regards military consequences has been gained by the German delegates in another point. The treaty of Versailles stipulates that the fortifications on the southern and eastern German frontiers are to remain in their present condition and that no alterations or reinforcements of any sort are permitted. The present agreement concedes the important point that

this regulation applies only to the frontier zone; that is, the territory included between the frontier and the line of existing forts. It does not apply to the territory lying in the rear of this line, over which Germany regains entire freedom of action. The engagement not to erect any new fortifications, signed by the German delegates in the name of the German Government, applies consequently only to the frontier zone but not to the hinterland lying behind that zone. In case of danger threatening from the east, Germany is therefore at liberty, without transgressing the regulations of the treaty of Versailles, to construct a second line of defense in the rear of the forts Glogau-Loetzen-Kuestrin-Koenigsberg-Breslau.

NOTE.—The existence of these extensive fortifications is evidence of the bitterness between German and Pole. However, Locarno and German admission into the league have done much to better this situation. See "Poland" in this Bulletin. Attention is further invited to the recently announced intention of the French Government to begin construction on a series of huge fortresses on the German frontier.—Ed.

GREAT BRITAIN

A. NAVAL

1. Fleet exercises.

The British Atlantic and Mediterranean fleets have recently completed their annual combined exercises off Gibralter. In accordance with the custom recently reinaugurated, press correspondents were permitted with the fleet. The following notes are condensed from the various articles on these exercises which have appeared in the English press:

The *Centaur* (C. L.) carried out a long-range practice with her 6-inch guns, using the *Repulse* as a target and offsetting her sights. Eight salvos were fired, both ships steaming at high speed on various courses. Range opened at 10 miles and closed to 5.

The *Hood* and *Repulse* carried out torpedo-firing exercises, using each other as targets. The *Repulse* fired eight torpedoes from deck and underwater tubes in six minutes—the practice being a test of the rate of loading and firing under battle conditions. Range was about 7 miles.

Two fleet problems were engaged in, the first simulating the movement of the British fleet into the Mediterranean in the face of the fleet of a Mediterranean power which had invested Gibraltar. The second problem was in the Atlantic off the Straits and was intended to simulate the activities of the British fleet in denying access to the Mediterranean to an Atlantic power. All branches of the combined fleets participated in these maneuvers.

2. New torpedoes.

The *Kent* class of new British cruisers will carry a torpedo battery of eight 21-inch tubes, the tubes mounted parallel in two quadruple

mounts, one mount on each broadside. The *London* class will carry twelve 21-inch tubes mounted in four triple mounts.

The 24-inch torpedo under development and trial by the Admiralty will not be put in manufacture in time for installation on the *Kent* class, and it is very unlikely that it will be ready for the *London* class. The Admiralty decision in respect to the installation of the 21-inch instead of the 24-inch torpedo in these vessels, while primarily due to delay in development of the 24-inch torpedo, was also influenced by reasons of economy.

The characteristics of the new 24-inch torpedo will be as follows: Speed, 47 knots for 3,300 yards; 28 knots for 11,000 yards. Weight of explosive charge, 700 pounds. It is not to be supplied to submarines and destroyers.

Whitehead is turning out a new 21-inch torpedo, and has manufactured 50 for Greece and a number for Holland and Spain. Italy tried to buy one for trial, but the firm would not accept an order for a smaller quantity than 50. It is understood that the British Admiralty would not adopt it originally owing to large stocks of the old 21-inch type and the prospective development of the 24-inch type.

This new 21-inch torpedo is manufactured in two lengths—22.4 and 24.6 feet—and each length can be constructed to carry an explosive charge of 550 or 660 pounds, as desired. The principal characteristics of the torpedos are given below:

(*a*) 21-INCH, 24.6 FEET

		With explosive charge of 550 pounds	With explosive charge of 660 pounds
Diameter	inches	21	21
Length	feet	24.6	24.6
Capacity of air vessel	cubic inches	42,594	40,000
Total weight of torpedo ready for shooting	pounds	3,667	3,707
Working pressure	pounds per square inch	2,560	2,560
Guaranteed speed:			
3,300 yards	knots	46	44
4,400 yards	do	44	43
8,800 yards	do	33	32
11,000 yards	do	30	29
16,500 yards	do	24	23

(*b*) 21-INCH, 22.4 FEET

Diameter	inches	21	21
Length	feet	22.4	22.4
Weight of explosive charge	pounds	550	660
Weight of air in air reservoir	do	280	253
Total weight of torpedo:			
Ready for launching	do	3,397	.....
Empty	do	2,974	.....
Guaranteed speeds:			
3,300 yards	knots	46	45
4,400 yards	do	44	43
8,800 yards	do	32	31
11,000 yards	do	29	28
16,500 yards	do	23	22

These torpedoes are manufactured at the Weymouth works. Stainless steel coppered is used for the principal parts. Three hundred and forty horsepower engine, 2 cylinders, 90° crank shafts of gun metal. Four-bladed propeller with broad tips. Self-blowing exercise head.

The price quoted for the 21-inch, 22.4-foot size, complete with war head but no explosive charge, packed and delivered at English port, is £2,420 ($11,761.20, at $4.86 to the pound sterling) each, net.

NOTE.—The "Kent" and "London" class of cruisers are each of 10,000 tons. Great Britain has 11 of these built and building, each to mount eight 8-inch guns.—Ed.

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3. Hecla works, Hadfield Steel Co.

The "Hecla" works of the Hadfield Steel Co., Sheffield, are operating at about 20 per cent capacity throughout, with some of the projectile plants operating at about 30 per cent capacity. There are approximately 7,000 employees on the pay rolls against 17,000 during the war. In the projectile departments, a small amount of automotive work is being carried on to fill in, consisting principally of the manufacture of springs, small castings, and forgings. Other departments of the plant are largely occupied in making wheels of mining cars, locomotive driving wheels, dredger buckets, and parts of dredging machinery.

The following types of projectiles are in the process of manufacture: 3-pounder, 4.7-inch, 6-inch, 8-inch, both armor-piercing and target; 16-inch armor-piercing and target, and some few 15-inch. Foreign orders are taken care of in a separate shop. In one part of the projectile plant, a number of bombs are in the process of manufacture. The largest of these is about 350 pounds. They are very long, and conical at both ends. They are not yet provided with vanes. Some smaller bombs of 100 pounds and 50 pounds are also being manufactured.

Most of the projectile work in hand for the British Navy is for new construction. The largest number of projectiles is of the 8-inch armor-piercing type. No caps were observed, but a few forgings of approximately 8-inch size were noted in the forge shop.

About 500 4.7-inch projectiles were noted. Some of them had solid points and others were cupped in at the nose to take a time fuse. None of them was banded, but the band scores were cut. The band scores of these and of all calibers seen contained "waved ridges" to guard against slipping of the band.

The 6-inch projectiles were of the standard Hadfield design; none was capped and no provision was made for capping. Some 200 of this caliber projectile were estimated on the racks and in the shop.

A large number of 16-inch projectiles were noted throughout the shop. The projectiles had large cupped base plugs with deep fuse seats. The base plug was threaded about 6½ inches into the base of the projectile with eight V threads per inch. The base plug seat threads were milled with a special thread miller. It was noted that the fit of the base of the base plug in its counterbase seat was extremely close, showing a very fine line when assembled. The corner of the base was turned with a very small radius.

A projectile was seen in the process of banding. It was a single band about 5 inches wide and was seated about 1 inch from the base of the shell.

The ballistic caps were of the standard Hadfield round-nose type and were fitted to the projectiles by peening the skirt of the cap into notches cut in the ogive of the projectile. Solder was used for additional security. The wind shield appeared extra long and was screwed on to the cap.

It was stated that the "nob" type cap (Firth design) was considered equally efficient to that of Hadfields, but no advantage in regard to "biting" into horizontal armor at long range as originally claimed by the Firth people was admitted. It was stated that in the ballistic trials no particular advantage could be noted between the two designs. All projectiles were guaranteed to penetrate their caliber of plate at 20° impact and to be in condition for effective burst thereafter. Tests indicated that they were efficient at 25° and 30°. They believe that their 16-inch projectile as developed at present is superior to those manufactured for the United States Navy. They believe their present projectile to be equally efficient and effective at 8,000 yards greater range than the United States projectile. The improvement is not achieved by any single modification of the projectile, but it is general and the result of repeated trials and experimentation.

The 16-inch and 8-inch target-practice projectiles in course of manufacture were stated to be the first target projectiles manufactured for the Admiralty for some years, as the Admiralty had been able to use replaced service projectiles of older calibers for target-practice purposes.

By Admiralty contract, Hadfields gets approximately two-thirds and Thomas Firth one-third of all projectile orders. Of interest in connection with the above is the note under vote 9 of the "Report of the controller, etc.—Navy: Appropriations account 1925–26." An extract is quoted below:

SUSPENSION OF SHELL CONTRACTS

The expenditure under vote 9, subhead G, includes payments of £8,500 and £6,500, respectively, to two contractors for loss, in respect of overhead charges, occasioned by the suspension of their fixed price contracts for supply of shell.

The contracts were placed in August, 1924, and February, 1925, but work on them was suspended in September, 1925, in order that further trials might be carried out and the design reconsidered as the result of serious difficulties that arose on the firing of representative shell. Work was not resumed until May, 1926. It was recognized at the time that additional expense would be caused to the contractors, and in due course they presented claims amounting to £36,000 in respect of shop and overhead charges to March 31, 1926. These were examined by the Admiralty, and after discussion were settled, as stated, for £8,500 and £6,500, respectively. It appears that there may be, later, further charges by the contractors both for new work occasioned by the revised design and for components rendered useless.

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4. Catapult installations.

In connection with the statement in the House of Commons by the First Lord of the Admiralty to the effect that 13 additional catapults are to be installed in the course of this year on ships of the Royal Navy considered fit to carry them, it is the intention of the Admiralty to install one catapult on each of the following ships: H. M. S. *Nelson*, *Rodney*, *Kent*, *Suffolk*, *Cornwall*, *Cumberland*, *Berwick*, *Courageous*, *Tiger*, *Hood*, *Frobisher*, *Resolution*. One other ship of the *Royal Sovereign* class not yet determined.

The above program is only tentative at this time, but it is evidently the policy now of the Admiralty to install catapults in capital ships, aircraft carriers, and cruisers where possible.

NOTE.—The above marks a change in British policy in this regard and the Admiralty is evidently following the example of the United States. So far, catapult installations on British ships are limited to an experimental installation on the cruiser "Vindictive."—Ed.

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5. Turbines of "Amazon" and "Ambuscade."

There have been defects in the turbines of the above-mentioned destroyers which caused a considerable delay in their completion. The difficulties experienced have been due to vibration troubles in the *Amazon* and to difficulties with diaphragm clearance in the *Ambuscade*.

The casings of the main turbines of the above vessels are not supported at the ends, but the weight is taken through four pads on the casing, symmetrically placed, two on each side. It was found that with this method of support there appeared to be a certain distortion in the casing caused by the heat expansion, which had to be rectified before the turbines could be run at full power.

NOTE.—The above destroyers have recently completed their trials. They are the first postwar boats built by Great Britain. They are of 1,330 and 1,210 tons, mount four 4.7-inch guns and six 21-inch torpedo tubes and did better than 37 knots on trial.—Ed.

6. H. M. S. "Adventure," auxiliary Diesel electric drive.

There is quoted below an extract from a paper on "The Application of Electricity in Warships," read before the Institution of Electrical Engineers by William McClelland, in respect to the Diesel electric drive of H. M. S. *Adventure*. The Diesel electric equipment of H. M. S. *Adventure* is interesting in that it is the first of its kind in the British Navy. It is largely experimental and is to be used only as an auxiliary to the main propulsive machinery installation.

PARTICULARS OF ELECTRICALLY PROPELLED WARSHIPS

In Table 7 some of the data relating to various electrically propelled warships have been tabulated. Considerable variation will be noted in the magnitudes and the types of scheme employed, as well as in minor particulars, such as the shaft speed.

In H. M. S. *Adventure*, an auxiliary ship of approximately 8,000 tons displacement, Diesel-electric propelling machinery for cruising speeds has been installed. The power developed on each shaft is approximately 2,100 stated horsepower at a propeller speed of 160 revolutions per minute. A three-phase alternating-current system is adopted, the pressure being 1,100 volts between phases.

Two three-phase high-speed induction motors are used as the propelling motors, one for the port and one for the starboard side of the ship. Each motor is normally supplied from its own alternator, which is direct coupled to a Diesel engine. The two alternators do not run in parallel. Under emergency conditions, however, it is possible to run both motors from one alternator, or the port motor from the starboard alternator, or vice versa. The motors have wound rotors and are brought up to speed by the use of reactance-resistance starters. Special provision is made for overexcitation of the alternators by the use of a novel type of automatic booster to meet conditions of temporary or periodic overload due to heavy weather or similar causes.

The control of the motors and alternators is carried out by oil-break switches, with operating mechanism on the control platform in the Diesel engine room. The control and operation of the plant has been so arranged that the whole sequence of operation is carried out by means of a single handwheel for each side of the ship, the usual protective devices being fitted. The paralleling of the alternators is prevented by mechanical interlocks.

The installation is as simple as can be arranged; instruments of various types have been provided to supply all possible information for the study of the performance under varying conditions. Particulars of this equipment are given in Table 7 and opposite figure:

EXCERPT FROM TABLE 7 MENTIONED ABOVE

Name	Adventure.
Type and nationality	Small cruiser (Great Britain).
Date of completion	1926.
Stated horsepower	4,200, cruising.
Knots	14.
Propeller (number, 2)	Speed, 160 r. p. m.

Prime mover:

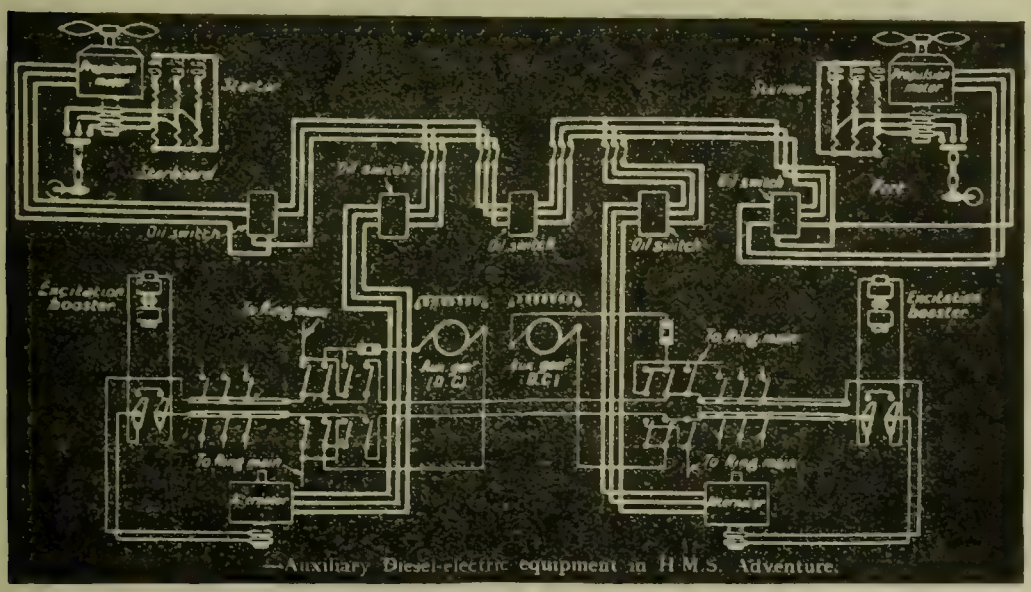
Type	Diesel engines.
Number	2.
Speed	343 r. p. m.
Pressure	
Superheat	

Generators:

Type	3-phase.
Speed	343 r. p. m.
Voltage	1,100 volts.
Output	1,650 kilowatts.

Motors:

Type	Induction.
Number	2.
Speed	1,360 r. p. m.



—Auxiliary Diesel-electric equipment in H.M.S. Adventure.

NOTE.—The "Adventure," recently completed, is a special type, designated as "mine-laying cruiser." She is of 7,250 tons, mounts four 4.7-inch guns, carries about 1,000 mines, and has a speed of 28 knots, using turbines for high speeds and Diesel-electric drive for cruising speeds.—Ed.

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7. *Australian floating dry dock.*

The New South Wales and Commonwealth Governments have ratified the agreement for the construction of a 15,000-ton floating dock at the Walsh Island Dockyard at a cost of £400,000, to which the Federal Government will contribute £135,000.

The dock will be located at Newcastle and will easily accommodate the new cruisers, while in time of war it is towable to any part of Australia. The construction is to take three years; the structural steel will be supplied locally, but most of the hull plating will be imported.

NOTE.—The two new cruisers referred to are the 10,000-ton craft, "Canberra" and "Australia." They belong to the "Kent" class and should be completed the last of this year, and will then join the Australian Navy.—Ed.

8. Condenser tubes.

The Weir Co. have been manufacturing monel condenser tubes for the past three years, and the tubes have been very extensively used in the merchant service on passenger liners and in the British Navy. The following data refers to Weir monel-metal tubes:

(*a*) *Gauge of tubes.*—20 and 21 are the gauges used. This is a substitute for the 18-gauge brass tube.

(*b*) *Heat transfer quality as compared with brass.*—The heat transfer quality of the 20 or 21 gauge monel tube is equivalent to the heat transfer of the 18-gauge brass tube. The Weir Co. states that for equal thicknesses, the heat transfer of the brass is better.

(*c*) *Kind of tube sheet employed.*—Certain installations have been made with a monel tube sheet and monel ferrules, but a brass tube sheet and brass ferrules can be used, and are quite common. There have been several instances where the brass condenser tubes have been removed from the condenser and monel tubes fitted, with no other metal changes.

(*d*) *Whether any of the connecting materials, ferrous or nonferrous, have suffered any deterioration due to dissimilar metals being used in contact with salt water.*—There has been no indication so far that any deterioration has resulted from the use of dissimilar metals. There have been certain cases where, after difficulty with brass tubes, monel tubes have been substituted, with no other metal changes in the condenser. The monel tubes have given complete satisfaction and have already surpassed the life of the previous brass tubes.

The difference of potential in aerated sea water between monel metal and certain other metals is given below:

Between monel metal and brass, 1½ millivolts; between monel metal and steel, 4⅓ millivolts; between monel metal and cast iron, 13 millivolts.

(*e*) *General behavior and lasting qualities of monel tubes.*—Reports so far indicate that monel metal is superior in general behavior and lasting qualities to brass. Its use, however, has been limited to about three years, but there have been no developments so far that cast any doubt on the efficacy of monel metal. Attention is drawn to the fact that the *King George V*, where extreme care was taken in the condensing plant, had monel metal tubes installed in one of the condensers.

In respect to condenser tubing, there is quoted below a communication from Messrs. Allen Everitt & Sons (Ltd.), who do a large business in nickel condenser tubes:

These tubes are not "monel" tubes. They consist of an alloy of copper and nickel and are generally supplied in two qualities, viz, 80 per cent copper and 20 per cent nickel and 70 per cent copper and 30 per cent nickel.

(*a*) *Gauge of tubes.*—The tubes have generally been supplied in 18 I. W. G. This is following the custom in this country with regard to brass tubes. We have supplied some in 19 gauge and a still less number in 20 gauge.

(*b*) *Heat transfer quality as compared with brass.*—We have no specific information on this point, but the difference can not be very great. We have supplied many ships with complete installations of these tubes, with no record of a reduction in the efficiency of the condenser as the result of the substitution. A number of new ships (20 or more) have used these tubes in lieu of brass, and no alteration has been made in the cooling area in consequence. It is safe, therefore, to presume that whatever difference there may be is negligible.

(*c*) *Kind of tube sheet employed.*—The tube sheets for use with supernickel are the same as those used with brass, viz, 60/40 brass or 62/37/1 naval brass.

(*d*) *Whether any of the connecting materials, ferrous or nonferrous, have suffered any deterioration due to dissimilar materials being used in contact with salt water.*—No deterioration has been reported as the result of changing from brass tubes to supernickel. In one instance brass ferrules seriously corroded, but this was only a repetition of what had occurred with similar ferrules when used with brass tubes. It was hoped that the substitution of supernickel might preserve the brass ferrules. Apparently no alteration in the behavior of the ferrules occurred. In this particular case supernickel ferrules have been substituted now and they are giving satisfaction. It may be of interest to mention that quite a number of vessels are using ferrules of the same mixture as the tubes as a safety precaution. This particularly applies to new ships.

(*e*) *General behavior and lasting qualities of the tubes.*—We have been supplying these tubes to power stations and ships for approximately five years. Every customer has, so far, expressed satisfaction with their behavior. Tubes have been extracted from the first installation and their appearance is still as good as when they were inserted. This installation is a power station on the northeast coast of England, where brass tubes have been known to fail in six weeks, and it is a general thing for a large percentage of a given installation to fail within a year. Since the initial set of 200 tubes supplied in February, 1922, the power station in question has purchased from us some 70 tons of these tubes as repeat orders.

As mentioned in our circular, over 80 vessels in commission are using these tubes in every part of the world.

A specific test of interest is one made by the Canadian Pacific Steamships (Ltd.), in their S. S. *Minnedosa.* This vessel destroyed brass tubes very rapidly. Three sets were destroyed in three years preceding the adoption of supernickel. The whole of the condensers were retubed with 80/20 supernickel in January, 1925. Test tubes have been withdrawn from time to time, on two occasions in bulk. In the first instance, after 12 months' service, one tube was taken from every other row down the center line of both condensers and carefully examined. The tubes were in the same condition as when they left the factory. In December, 1926, a further bulk supply of about 30 tubes was taken from selected areas chosen by the chief engineer, with results equally satisfactory. So satisfied are the Canadian Pacific Steamships (Ltd.) with the behavior of supernickel that six vessels of their present fleet are now fully equipped with these tubes, and the seven new ships at present building are likewise to be so fitted.

The White Star Line has tested the tubes in its S. S. *Persic* over a period of three years with results similar to those obtained by the Canadian Pacific Steamships (Ltd.).

The British India Steam Navigation Co. has also carried out a special test which has proved quite satisfactory. All these lines have purchased considerable numbers of tubes for other ships while these tests have been in progress.

(f) *Have any of these tubes been installed on naval vessels?*—The British Admiralty had a preliminary trial set of 200 in December, 1924. Since then they have ordered a set for a cruiser and another parcel of 2,400. The French Navy has purchased them for one cruiser. We have an order on our books to supply them for two new Dutch destroyers, and the Icelandic Fisheries Board has put them into a fisheries protection cruiser.

The British Admiralty is, we believe, considering the use of these tubes in other vessels, and we have at present a tender outstanding which is receiving their consideration.

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9. Naval schools and colleges, Greenwich.

The Royal Naval College handles courses in a great variety of subjects, which accounts for the apparently excessive number assigned to the teaching staff. Mathematics still remains the principal subject, but advances in science in the navy have necessitated greater attention than heretofore to some other subjects. The Royal Naval College seems inadequate in size to the great number of officers undergoing instruction there, and the sublieutenant group, of whom there are usually about 120, is particularly in need of additional space and facilities.

The mess hall, though a fine large room, requires two sittings in order to serve all the student officers, officer staff, and civilian professors who are attached to the college and who are attached to the war and the staff colleges. It is not unusual to serve luncheon there for a total of 340.

The Naval War College continues to conduct the "senior officers' war course," four flag officers being now assigned there, in addition to captains. There are also several officers of the army and air force, the total number taking the course now being 16, whereas 20 is considered the normal strength.

The tendency to eliminate the use of the game board seems to have been carried to the final conclusion now of totally disregarding this form of war training. It was stated that this method had come to be regarded as too artificial and that it was impossible thus to represent many elements of conditions at sea that would have to be considered by a naval commander before or during action. Strategic exercises and chart maneuvers are also not included in the scheme of training at the Royal Naval War College.

The course there is now about 19 weeks. The course is composed almost entirely of lectures, conferences, and appreciations (estimates) of situations. International law is still one of the subjects

considered, but the amount of time given to it has been materially decreased.

The same flag officer serves as president of the Royal Naval College and as vice admiral commanding the Royal Naval War College, this difference in title being required for some administrative reason.

The Royal Naval Staff College is also a little under strength at this time, there being a total of about 33 officers of the navy, Royal marines, army, and air force now under instruction, instead of the normal strength of 40. The length of the course there is now 10 months, out of which time about 1 month is given over to holidays. A portion of the remaining nine months is spent in visits to some of the technical schools, such as the gunnery school at Whale Island, the antigas school, the antisubmarine school, etc., where up-to-date contact with development in weapons is considered to be necessary in pursuing the staff training at Greenwich. A visit is also made to the Military Staff College at Camberley, where some form of exercise in combined operations is studied and investigated, the air force sending its similar students there also at the same time.

The course at the staff college is similar for all students now, there being only one course in which are merged the required features of the former intelligence course and trade course.

Though the purpose of the staff college essentially is to train officers of medium seniority for duties on the staff of the high commands ashore and afloat, it also includes the more elemental forms of war training as given at the war college. Some use is made of the tactical board at the staff college, and chart maneuvers are also included in the schedule, though these are not an important part of the course.

Most of the course is given over to lectures, conferences, and appreciations of situations, and an important feature is the preparation by each officer of a paper on some given subject which requires considerable reading and for the preparation of which several months are allowed. Each officer then presents his paper to the class and a general discussion follows.

Training is also given in the proper methods of preparing a précis of an important conference, as a staff officer always attends any important conference held by his flag officer, and is required to submit afterwards a complete précis of the proceedings.

At both the War College and the Staff College the importance of giving opportunity for the individual views of students is stressed, and it is made clear that nothing that is expressed will go beyond the conference room, no record being kept of what anyone may say.

The Staff College is an entirely separate institution and its director is not under the control of the vice admiral commanding, except in matters of local administration and of a general nature.

The "Painted Hall" containing some very fine paintings and relics, the chapel, and the Naval Museum are very interesting and inspiring adjuncts to the educational institutions at Greenwich.

The Royal Medical School continues its function, it being evident that the medical branch of the Royal Navy is experiencing some difficulty now in obtaining the desired number of properly trained doctors who are willing to enter the service. For this reason, a probationary form of service for three years has been adopted, at the expiration of which young medical officers may leave the service if they so desire. By offering this opportunity, a greater number of applicants have been obtained and the rate of pay is higher during the probationary service, though pension rates are not applicable during that period.

The Medical School is more of an experimental agency and a source of supply for vaccines than an educational establishment at present.

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10. British Navy League.

Opportunity was taken to visit the annual meeting of the Chelsea Branch of the Navy League of the British Empire. The entire neighborhood of Chelsea was circularized beforehand by small cards which announced that a lecture on submarines and small craft would be delivered by Rear Admiral G. M. Tomlin, Royal Navy, formerly commanding H. M. S. *Malaya*, and that seats could be reserved by application.

The meeting was held in the town hall at Chelsea, and upon arrival it was found that the main object of the meeting was the annual meeting of the Navy League and to get new members. The hall, which held approximately 400 people, was well filled, a substantial number of youngsters being present.

About an hour of the meeting was taken up with the business of the Navy League, and it was noted that not more than 10 per cent of the individuals present took part in the business of the league, which was mainly the raising of the right hand when called upon to vote upon the approval of the annual report and the reelection of the committee in charge. Apologies were read from the most prominent members of the committee regretting their inability to be present, also an apology was read from the scheduled speaker of the evening regretting his inability to attend, in which he nominated a substitute.

The people attending the lecture or meeting were distinctly of the so-called middle, or lower classes. Certain short addresses were

given eulogizing the work of the Navy League and the excellence of the committee in charge. An address was also given on patriotic lines, consisting of many disconnected incidents where the British Navy had been active in peace time for the glory of the Empire. Certain sections of this address raised considerable enthusiasm in the audience. This address was followed by the talk on submarines given by an officer in civilian clothes, who was apparently on the retired or half-pay list, of probably the rank of captain or a senior commander. The lecture was given in two parts, the first part of which discussed the general construction and operation of a submarine, intended for the edification of those knowing nothing of naval vessels, and the second part was composed of certain incidents in the submarine service during the recent war. There was an interval of 15 minutes between the two parts of the lecture which was used for circulation through the audience of a large number of people for the purpose of obtaining new members to the Navy League. There was no way to determine the response for new memberships to the Navy League, but very few recruits were observed. The lecture on submarines was very superficial, and the incidents comprising the second half of the lecture were told in such a manner as to create the utmost enthusiasm in the audience, in other words, the dramatic side of each adventure was stressed rather than the instructional side.

The impression obtained was that the meeting was for the entire purpose of propaganda for the Navy League, and the effort was "to make the British lion roar" as loudly as possible to obtain new recruits for the Navy League.

It may be added that during the entire evening there were no remarks that reflected unfavorably upon the United States in any way, except possibly a sentence to the effect that "the United States would learn what it meant to follow the British Empire in China."

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11. Navy estimates, 1927–28.

A summary of the navy estimates, 1927–28, is submitted in the following paragraphs, with comment regarding the principal features of interest.

The British Navy estimates for the year 1927–28 show a gross estimate of expenditure of £63,219,140, from which are deducted the appropriations in aid amounting to £5,219,140, thus leaving a net expenditure of £58,000,000 to be made. This sum shows a reduction of £100,000 below the estimates for the present fiscal year. Certain votes have been considerably increased in the 1927–28 estimates, particularly those for new construction and for the fleet air arm, reductions being effected in others.

In connection with vote A, vote 1, it is noted that the personnel of the navy is to be reduced from 102,675 to 102,275, a reduction of 400 in numbers, inclusive of Royal Marines, but exclusive of Royal Marine police. It is stated that personnel in addition to the above numbers will be required for the new cruisers of the *London* class, but in view of the delay caused by labor troubles in starting the construction of these vessels, no provision is made for personnel for them in the present estimates. Certain recommendations of the Chelmsford committee have been adopted, principally those relating to the retirement of flag officers, a voluntary retirement scheme for the older lieutenant commanders, and a spreading out of the ages of officers on promotion to lieutenant as well as a slight rearrangement of the terms at the naval colleges by which mid-shipmen on being rated sublieutenant will proceed to the Royal Naval College, Greenwich, immediately and upon completion of their courses proceed to sea two or three months earlier. The net estimate for this vote shows a reduction of £2,700 to £14,715,300. It is to be noted that personnel assigned to the fleet has been increased by 466, the personnel of the Royal Marines decreased by 576, personnel under training decreased by 23, and personnel for miscellaneous establishments decreased by 267. It is interesting to note that the vote for the pay of personnel is approximately 25 per cent of the total net estimates.

Vote 2 for victualing and clothing the navy shows a decrease of £161,600 to a total of £4,261,600. Based on a personnel of 102,275, this would indicate a cost of £41 14s., or about $206.65, per annum for each member of the navy. Certain minor items in this vote have been increased over the estimates for 1926–27, but the main reductions for the coming year are £90,990, covering provisions, messing allowances, etc., and £135,450, in naval clothing, soap, and allowances in lieu of clothing, etc., for the navy and marine corps. This reduction is explained as being due to lower rates of allowances and to lower prices.

Vote 3 for the medical establishments and services remains the same as for the past year in the sum of £452,900. It is interesting to note that there is an increase in salaries and allowances under this vote amounting to £10,565, which is partially offset with a decrease of £8,000 for the subsistence of seamen at sick quarters "not in charge of naval officers," indicating either that the general health of the personnel is better or that more adequate arrangements have been made for the care of the sick at establishments directly under naval supervision. It is stated that it has been decided, on the grounds of economy, to close the separate military hospital at Plymouth and use only the naval hospital for the treatment of service personnel, the military paying the naval authorities on a per capita basis for their patients treated at the naval hospital. The revenue from this

item from other Government departments during 1927–28 is estimated at £40,475, while there is an increase of £10,565 for increased pay and for pay of additional personnel necessary to cope with the extra work, thus showing a net income to the navy for this item of approximately £30,000.

Vote 4 for the fleet air arm shows an increase over last year's estimates of £201,000, the total estimate of the expenditures under this vote being increased to £882,000. Of the increase, £24,000 is for pay of personnel, £5,000 for victualing, and £172,000 for material is provided for over the corresponding figures for 1926–27.

Vote 5 for educational services provides for a net total of £240,700, a decrease of £85,100 over the estimates of 1926–27. This vote provides for the educational services maintained ashore and does not include fleet training. The new Imperial Defense College will, according to the estimates, cost £8,780 under this vote, covering salaries, wages, and contingencies. It is to be noted, however, that the reduction of £86,100 is not a reduction in the true sense of the word, since the cost of fleet training and other educational items previously provided for under vote 5 have been transferred to other votes of the estimates where they are considered to be more appropriately chargeable.

Vote 6 for scientific services in the amount of £438,000 shows a slight increase of £2,700 over the estimates of 1926–27. No particular comment need be made on this vote, as it follows generally the lines of last year's vote. It is interesting to observe, however, that since 1918 the amount estimated annually for this vote has gradually increased until the present time—the estimates for 1927–28 being practically double those of 1918—denoting the interest in scientific research. Particular reference is made in the memorandum of the first lord to the development of heavy-oil engines, which have a performance in advance of those obtainable from commercial sources.

Vote 7 for the Royal Naval Reserves shows a reduction of £18,900 to the net total of £426,600. This saving is attributed to a modification of training requirements and cessation of certain training for Royal Naval Reserves.

Vote 8 for shipbuilding, repairs, and maintenance, in the amount of £20,814,500, is the largest and most interesting individual vote of the estimates. This vote, in addition to providing for the expenses of shipbuilding, repairs, and maintenance, etc., also includes the establishment costs of dockyards and navy yards at home and abroad. This vote is divided into two main sections, viz, dockyard work and contract work. The first named, dockyard work, is in turn subdivided into two sections, (1) personnel, for which an esti-

mated expenditure of £7,146,000 is estimated, and (2) material, for which an expenditure of £5,024,800 is estimated. For the second main section, contract work, the sum of £8,643,700 is estimated. In comparison with the estimates of 1926–27, reductions are shown under dockyard work, personnel, of £341,200, accounted for primarily under wages, etc., at home and abroad, which in turn is due to proposed reductions in the force of workmen at Portsmouth, Devonport, and Chatham, and to the completion of the reduction at Pembroke and Rosyth dockyards to a care and maintenance basis, the reduced working force caused principally to smaller requirements for repairs to the fleet on account of modified refitting arrangements. Under Section II—Material, a net decrease of £455,400 is shown, the total estimated expenditure under this section being £5,024,800. In this connection it is to be noted that there is a net decrease in naval stores, but a net increase in the cost of fuel and lubricating oil for the fleet of £280,000, and in addition to the cash vote of £5,024,800 under Section II—Material, stocks of naval stores purchased in previous years are to be drawn upon, without replacement during 1927, to the extent of £927,500. The net increase in the cost of fuel and lubricating oil of £280,000 over the corresponding figure of last year is particularly significant, considering the prevailing stress of economy. Under Section III—Contract work, a net increase of £1,216,500 over last year's estimates is shown. The total estimated expenditure under this section is £8,643,700. This increase is mainly due to the requirements for new construction, but is offset by the decreases under Sections I and II, thus showing a net increase of £419,900 on the total vote. Of principal interest in connection with this vote is the provision for new construction, reconstruction, and large repairs, which will be considered later in a separate paragraph.

Vote 9 for naval armaments provides for a net expenditure of £3,341,700, a net decrease over last year's estimates of £94,700. However, it is believed that this is a decrease on paper only, particular attention being invited to the fact that in addition to the sum to be appropriated, stores purchased in previous years are to be utilized, without replacement during the coming fiscal year, to the extent of £1,062,000. Therefore, it would seem that, by the utilization of stores purchased in previous years, it has been possible to provide the sum of £936,300 for armament for new construction and at the same time to show a slight reduction in expenditure. It is interesting to note under this vote that, disregarding appropriations in aid, £1,398,575 is required for personnel, administration, and maintenance of armament establishments, while a sum of £2,668,885 will be expended for material, including tests.

Vote 10 for works, buildings, and repairs at home and abroad provides for an expenditure of £1,907,000. It is to be noted that for the dockyards only the minimum sums necessary for their maintenance and upkeep is provided. The fuel oil storage plants as listed under this vote appear to be all nearing completion. It is interesting to note that the expenditure for the Singapore naval base for the next fiscal year will be only £270,000, leaving £6,287,000 to be appropriated in the coming years for the completion of this project, although it would appear from this vote that the fuel oil storage accommodation provided for at this base, and costing £950,000, is practically completed. The Singapore floating dock will be completed in 1928 by the contractors, Messrs. Swan, Hunter, and Wigham Richardson. In connection with the Singapore naval base scheme it is noted that the Federated Malay States have contributed £2,000,000 towards the cost of this base generally and that during the coming fiscal year the sum of £326,000 has been used as an appropriation in aid under subhead 3 of vote 8 and £250,000 as a similar appropriation under vote 10.

Vote 11 for miscellaneous services in the sum of £805,000 shows a reduction in expenditure of £166,400 over the estimates of 1926–27. This is explained as being principally due to not having to make provision this year for the transfer of personnel of dockyards placed on a care and maintenance basis and a reduction in requirements under naval sea conveyance for reliefs of His Majesty's ships recommissioning. Under this vote provision is made for miscellaneous charges which can not be properly allocated to particular votes.

Vote 12 for the Admiralty Office provides for a sum of £1,238,000, covering the salaries and wages of personnel and the contingent expenses of the Admiralty. This amount is an increase of £18,000 over the amount appropriated for this purpose last year. Although considerable criticism has been directed at the Admiralty by the press on account of the expenses of a large staff, etc., no reduction has been effected and the increase in expenditure is explained as being due to one extra pay day for officers in the year plus progressive increases of salaries of civilian personnel for length of service.

Votes 13, 14, and 15 can be considered as a whole as they provide for the pensions of officers, men, and civilian personnel and their dependents, also half pay, unemployment pay, and retirement pay of each class of personnel mentioned. Vote 13 for £2,943,000 shows an increase of £84,100; vote 14, for £4,571,000, an increase of £60,600; and vote 15, for £962,000, an increase of £112,400 over the previous year's estimates. These increases are explained as being principally due to normal increases in pensions and superannuations.

Provision is made in the estimates for the following new construction:

1 class "A" cruiser (10,000 tons).
2 class "B" cruisers (8,000 tons).
1 flotilla leader.
8 destroyers.
6 submarines ("O" type, 1,480 tons).
2 mine sweepers.

These vessels form the third year's installment of the building program introduced in 1925, with the exception of the two mine sweepers which are additional to the vessels provided for at that time, but which are in place of the four motor launches scheduled for the year 1926–27, but now eliminated. The total amount of money budgeted for new construction during 1927–28 is £9,983,446, as per the statement of the first lord, an increase of £899,753 over the corresponding figure of 1926–27. The figure £9,781,125 given for new construction under "Program of shipbuilding" is made up of £9,047,146 (vote 8, note p. 72, Navy Estimates), £3,139, amount by which estimated withdrawals from stock exceed cash payments for like articles brought into stock (note p. 72, Navy Estimates) and £730,840, establishment charges, (p. 169, Navy Estimates). About 15½ per cent of the total net estimates will be used for new construction. Of the total amount for new construction, it is noted that the sum of £3,537,780 will be expended for work on vessels undertaken by His Majesty's dockyards, £5,894,475 will be expended for work by commercial concerns under Admiralty contract, and £348,870 will be expended on the floating-dock for Singapore. As explained above, these figures are exclusive of the amount to be expended for armament. It would appear that 15 vessels—2 battleships, 5 cruisers, 2 destroyers, 1 submarine, 1 mine layer, and 4 gunboats—are to be completed during the year; work is to be continued on 7 cruisers, 6 submarines, 1 submarine depot ship, and 1 repair ship; work is to be commenced on 3 cruisers, 1 flotilla leader, 8 destroyers, 6 submarines, and the 2 mine sweepers mentioned above. Summarizing, 15 vessels are to be completed, 15 vessels to be continued, and 20 vessels to commence during the coming fiscal year. The five-year program introduced in 1925 provided for 81 units; 4 motor boats of that program have been cancelled this year, and 2 mine sweepers added for next year. Attention is invited to the estimated expenditure of £233,881 for the *Malaya*. From the amount involved, it is assumed the *Malaya* is to have bulges fitted.

An examination of the estimates seems to indicate that the Admiralty have prevented an increase in the navy estimates by a reduction in the repairs to the fleet, withdrawal of stores from stock

without replacement, and an apparent slowing down of the rate of construction of the building program. In respect to repairs, it will be noted that the amount allotted for the ensuing year is £411,171 lower than the corresponding item last year. In respect to new construction, the total of the funds allocated for the ensuing fiscal year for the vessels to be completed under the program of construction contained in the navy votes 1925–26 (old program) amounts to £3,751,224. This figure is to be compared with the figure of £2,197,000 submitted by the Admiralty in 1925 in its "program of new construction" for the fiscal year 1927–28. The total estimated expenditure for 1927–28, new construction, is given as £9,781,125, for the total program, which is to be compared with the figure of £10,723,000 estimated expenditure for the year 1927–28. The difference between the funds for the old program for the ensuing fiscal year, £3,751,224, and the figure for the total program for the ensuing year, £9,781,125, leaves a balance of £6,029,901 for the new program (1925–1930) for the ensuing fiscal year. This latter figure is to be compared with the figure of £8,526,000 which the Admiralty estimated in 1925 would be required for the new program for the ensuing year. Ignoring the fact that the total construction program during the past fiscal year was underexpended £858,680, largely due to the coal strike, at least 75 per cent of which may be assumed to have been applicable to the new program, it is shown that the new program of construction is held back under the present estimates by the amount of £2,596,099. This apparent check to the new program of construction is one of the striking features of the present estimates.

The very small sums voted for the 1927–28 quota of the building program confirm the recent statement of the first lord, in answer to a question in the House of Commons regarding the proposed naval limitation conference, to the effect that start on the new ships would not in any event be undertaken until late in the year, by which time the results of any conference that might be held should be known. From all present indications it would seem that materially larger sums for new construction must be authorized in future years unless some of the program is abandoned or unless it be spread over a longer period than originally contemplated.

B. AERONAUTICAL

1. Hawker Engineering Co.

There is considerable work in hand at this aircraft company since the company is completing their contract for 60 Horsley day bombers and 100 Woodcock single-seater night fighters.

An experimental all-metal fuselage Horsley day bomber is under construction and should be completed shortly.

Another standard Horsley is being built to carry 1,200 gallons of gasoline, with which the Air Ministry expects to make a nonstop flight to India within the next few months.

Still another standard Horsley has been altered to carry a 2,000-pound torpedo. This plane has actually flown with the torpedo, but no conclusions have been reached. The full load of plane with torpedo is about 6,200 pounds.

NOTE. Further details of Hawker activities and planes were given in the BULLETIN *of November last.—Ed.*

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2. *British airships—"R–100" and "R–101."*

The power cars for the *R–101*, being built by the Air Ministry at Cardington, have been completed. These cars are five in number and are designed and built with the idea of using the Beardmore heavy oil engine (Tornado III) as the power plant. This engine is an eight-cylinder vertical oil engine expected to develop about 600 horsepower at a cruising speed of 850 revolutions per minute. No details of the engine have been learned except that the crank case is of steel and the crank shaft is 5¾ inches in diameter. The engines are said to weigh 4,700 pounds apiece. The engines are now in production, but the type test on the first one will not be held until August, 1927. There does not seem to be any doubt as to the success of the engine, although it is understood that certain difficulties have been experienced due to failures of the crank shaft.

No suitable substitute for gold beaters' skin has yet been found. The gas bags for the *R–109* are being made from goldbeaters' skin supplied from Germany.

The outer cover of *R–101* is to be made of what is termed "B cotton," which is to have a black solution as an undercoat and then be given a white supercoat. The experiments in respect to the cover have not yet been completed, but the following is a typical experimental coat:

Undercoat (4 coats) black, composed of:	Per cent
Rubber	65.125
Gasblack	30.00
Zinc oxide	2.5
Sulphur	2.0
Tetra-ethyl thiouram disulphide	.375
Total	100.00

Supercoat (4 coats), composed of:	Per cent
Rubber	55.125
Zinc oxide	3.0
Sulphur	1.5
Aluminium powder	40.0
Tetra-ethyl thiouram disulphide	.375
Total	100.00

Cure 30 minutes at 270° F., dry heat.

The present state of completion of *R–100*, being built by the Airship Guarantee Corporation, is one frame erected, one frame on the

ground, other frames in more or less completed form, and 25 per cent of the material on hand for fabrication. None of the power cars have as yet been started.

NOTE.—The "R-100" and "R-101" are being built for the British airways service to Egypt and India. They are considerably longer than our Los Angeles. They will not be completed for at least a year, at the present construction rate.—Ed.

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3. The Schneider cup race.

The decision on January 25, 1927, of the Federation Aeronautique Internationale to hold the next race for the Schneider cup in 1927 instead of 1928 has been welcomed in Great Britain, which expects to have three machines of 1926 design ready for the race, which will be held at Venice. One of the British machines is a monoplane which is being built by the Supermarine Aviation Works (Ltd.) and is of the same type as that built by the same company for the 1924 race. The second is a biplane built by the Gloucestershire Aircraft Co., which is understood to embody many improvements over the *Gloster III* (1924 design), which was second in the 1925 race. The third machine is a new type of monoplane, from designs by Lieutenant Colonel Bristow and his staff. The first two machines will be fitted with Napier Lion engines, specially built for racing purposes, and the third machine will be fitted with a Bristol engine of the radial air-cooled type. Of the three pilots who have already been specially selected for training with a view to flying the British machines, the best known is Flight Lieut. J. S. Chick. His colleagues are Flying Officers R. H. Stocken and O. E. Worsley. It has been stated in the press that, following the result of the flying tests of the present machines of 1926 design, the Air Ministry will place orders for the construction of improved types for the race, which will not be held until sometime between September 1 and November 15. It is, however, difficult to see how this can be done in the available time. The Reuter message appearing in the press on February 9 to the effect that the United States Navy will not be represented at Venice can not fail to cause universal disappointment.

NOTE.—It will be remembered that Great Britain was not represented in last year's Schneider cup race.—Ed.

GREECE

A. AERONAUTICAL

1. Airplane factory.

In 1916 the Greek Government laid out the ground and drew up the plans for an airplane factory to be erected in Old Phaleron on

Phaleron Bay, 4 miles south of Athens. Work progressed very slowly, however, and the project, due to lack of available funds, was temporarily abandoned before the plant reached completion. Interest was later revived and in 1920 Commander Weston, a British naval officer, was commissioned to purchase the necessary machinery for the factory, including a completely equipped wood mill, machine shop, dope shop, power house, forge, and foundry. When this equipment arrived, however, further delays were encountered and none of the machines were installed, few even being unpacked, until five years later.

In the summer of 1925 the Blackburn Aeroplane & Motor Co. (Ltd.), of Olympia, Leeds, England, concluded negotiations with the Greek Government for a contract, signed in July, 1925, to design, build, and repair aircraft for the Greek Ministries of War and Marine.

The unfinished factory, started nine years earlier, was leased to the Blackburn Co. at a nominal rental, but the title to it as well as to the machinery and equipment then on hand and to the land remained vested in the Greek Government.

One of the first tasks confronting the new company, when they commenced operations in July, 1925, was the completion of the buildings, laying out of the factory, installing the machinery, and the training of a large force of unskilled Greek workmen. Work progressed rapidly, however, and initial orders were delivered within six month's time.

To-day the plant employs between 500 and 600 Greek workmen and an office and supervisory staff of about 30 British, and is capable of turning out more planes than the Greek Government will probably ever have occasion to require. It consists of four large, single-story, stone and brick, stucco-covered buildings with saw-tooth roofs of glass and corrugated iron, inclosed in a walled compound.

The Blackburn Co.'s investment to date, including office equipment, recently acquired machinery, and construction materials purchased and on order, is estimated to be in the neighborhood of $500,000.

The first plane built in the Old Phaleron shops was completed in January, 1926, and was tested the following March. It is known as the Velos torpedo plane, and was constructed from plans and specifications furnished by the home office of the Blackburn Co. in England.

Since the first of these Velos torpedo planes was successfully tested eight more have been built, making a total of nine planes of this type.

In addition to the torpedo planes the factory has entirely rebuilt 10 old De Haviland 9 reconnaissance planes acquired by the Greek

Government during the World War. Four have been designed for use as landplanes and six as seaplanes.

The factory has also done a large amount of miscellaneous repair work on other old war-time planes and has designed and built 12 sets or pairs of seaplane floats and chassis of an improved design.

Probably the outstanding accomplishment of the Blackburn Co. to date, and certainly one of greatest interest to American manufacturers of airplane engines, is its recent completion of a new model plane called the Helithon (Swallow), which is to be officially tested in the near future.

The Helithon has been designed especially to meet the flying conditions peculiar to Greece, where the thinner air causes about a 5 per cent loss of performance as compared with the results that could be expected from the same machine in the denser atmosphere of the United States.

The Blackburn Co. holds a contract with the Greek Government for an initial order of 18 of these planes (6 landplanes and 12 seaplanes), the contract to go into effect on the day the test flights are approved by the Greek Ministry of Marine. The first plane is to be delivered two months after the contract becomes effective and the remainder are to be delivered at the rate of four each month thereafter.

The Blackburn Co., although an English concern, and, therefore, inclined to favor the use of British products, is not restricted to the purchase, or the recommendation for purchase, of British aircraft engines and materials only, as is evidenced by the intended trial of the Salmson motor (French). They have expressed a desire to receive full particulars regarding any air-cooled radial type airplane engines of American manufacture, the specifications of which are similar to those of the three motors now under consideration, detailed descriptions of which are given further on in this report, and may seriously consider the purchase of any such engines meeting their requirements for experimental work in the new Helithon plane or for use in future models which they may design for the Greek Government.

Although the Blackburn Co. purchases with the approval of the Ministry of Marine, all raw materials, dopes and finishes, fittings, cables, tires, and instruments, for which it is later reimbursed at cost plus 10 per cent, the Greek Government itself orders and pays for, generally but not necessarily, upon the Blackburn Co.'s recommendations, all engines to be used in naval or military aircraft. This arrangement does not aply, however, to individual engines which the Blackburn Co. may undertake to purchase but should any of these engines be subsequently adopted as standard equipment in

Government planes they would thereafter be purchased by the Greek Government.

At the time the Blackburn Co. took over the Old Phaleron plant the Greek Government had on hand, among other miscellaneous equipment, a number of motors which had been purchased several years before, and it has been with this old stock that the newly built and the reconstructed planes have to date been powered. Although a number of new motors have recently been ordered, none have as yet been delivered. In this connection it is to be noted that all airplane engines for use in Greek military and naval aircraft are exempt from the payment of customs duties and surtaxes upon entering the country.

DESCRIPTION OF PLANES BUILT, REBUILT, OR UNDER CONSTRUCTION

Nine Velos torpedo planes.

A single-motored, two-seated, tractor-type biplane, mounted on two large floats and designed to carry a 1,320-pound torpedo slung directly under the fuselage. It has a wing spread of 48 feet, is powered with a 470-horsepower Napier Lion engine capable of propelling it at a maximum flying speed of 98 miles an hour, and weighs, fully equipped with torpedo, ammunition, two persons, and fuel sufficient for 3½ hours' flight, 7,000 pounds.

Ten De Haviland 9 reconnaissance planes (rebuilt, 4 as landplanes and 6 as seaplanes).

As reconditioned they are single-motored, tractor-type, two-seated biplanes, equipped with 220-horsepower Siddeley Puma engines, and are capable of a maximum flying speed of 105 miles an hour. They have a wing span of 42 feet, and their all-up weight, fully equipped with two persons and fuel for four hours' flight, is 3,900 pounds as seaplanes and 3,654 pounds as landplanes.

One Helithon (Swallow). This is a new model and has not had its official test.

It is the first plane designed and built in Greece, and is a single-motored, tractor-type, two-seated, dual-control biplane, to be used for training purposes, but may, with slight alterations, be readily converted into a single-seated fighter in the event of war.

It has a wing spread of 26 feet and a total wing area of 246 square feet. Its all-up weight including pilot, passenger, and 3½ hours' fuel is 1,600 pounds. Its weight empty is approximately 1,000 pounds, giving it a useful load of about 600 pounds.

When used as a landplane it is designed to have a landing speed of 50 miles an hour and a maximum flying speed of 105 miles an hour. When the wheels have been replaced by floats for use as a seaplane the landing speed will remain the same, but the maximum flying speed will be reduced to 98 miles an hour.

The Helithon has been designed especially to meet the flying conditions perculiar to Greece, where the thinner air causes about a 5 per cent loss of performance as compared with the results that could be expected from the same machine in the denser atmosphere of the United States.

Several innovations of interest have been embodied in the new plane. By removing four large nuts and disconnecting the gasoline feed pipe the entire nose assembly including the engine and propeller may be removed for repairs or overhauling and another unit put in place in from 15 to 20 minutes. In order to prevent as far as possible the burning out of bearings due to carelessness, a concealed switch in the ignition system has been arranged to operate in conjunction with a valve in the oil line and makes it impossible to start the engine until the oil has been turned on. Another interesting feature is a rectangular opening approximately 1½ by 2½ feet in size cut out of the upper wing directly above the forward cockpit which, although at the sacrifice of a certain amount of lift, provides an unobstructed view of other planes about to land or maneuvering forward and above the pilot, thus eliminating in a large measure one of the potentially dangerous "blind spots" with which pilots ordinarily have to contend.

NOTE.—As in naval affairs, Greece turns to Great Britain for advice and matériel in her aviation services. It will be remembered that there is a British naval mission now in Athens as there has been off and on for some years.—Ed.

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2. Airplane motors on hand and new ones ordered.

Napier Lion.—Ten on hand; British make. A 12-cylinder, broad arrow type, water-cooled motor, weighing 940 pounds dry and developing 450 to 500 horsepower at 2,000 revolutions per minute. Estimated price, £2,000 each, or approximately $9,740.

Siddeley Puma.—Thirty-one on hand; British make. A 6-cylinder, vertical-type, water-cooled motor, weighing 641 pounds dry and developing 220 horsepower at 1,400 revolutions per minute. Estimated price, £800 each, or approximately $3,896.

Salmson.—Three on hand; French make. A 9-cylinder, radial-type, air-cooled motor, weighing 417 pounds dry and developing 120 horsepower at 1,800 revolutions per minute. Estimated price, £400 each, or approximately $1,950.

Bristol Lucifer.—One on hand; British make. A 3-cylinder, radial-type, air-cooled motor, weighing 325 pounds dry and developing 135 to 140 horsepower at 1,650 revolutions per minute. Estimated price, £690 each, or approximately $3,360.

Engines ordered.—Of the existing makes of engines on hand, the Greek Government has ordered 6 additional Napier Lions and 12

Salmsons for delivery in the near future. It has also ordered for testing in the new *Helithon* one Siddeley Mongoose, the specifications of which follow:

British make. A 5-cylinder, radial-type, air-cooled motor, weighing 315 pounds dry and developing 135 to 140 horsepower at 1,650 revolutions per minute. Estimated price, £700, or approximately $3,409.

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3. Commercial aviation.

Commercial aviation in Greece has progressed to an even less extent than the military. The great network of passenger and freight airways which has spread rapidly since the World War over the larger portion of eastern, central, northern, and western Europe has only recently been extended to include the southernmost of the Balkan States.

No commercial air routes traverse the interior of the country at the present time, nor are there any prospects for their development in the immediate future.

In this connection it is reported that on August 22, 1925, an airplane of the Adria Aero-Lloyd, of Tirana, Albania, which is a subsidiary company of the Deutsche Glufthansa, A. G., Berlin, Germany, arrived in Saloniki with a Mr. Ryssel, a German aviation expert, on board. The Adria Aero-Lloyd operates regularly two air lines in Albania between Tirana and Korytsa and between Tirana and Valona, with occasional flights to Scoutari, and the object of Mr. Ryssel's visit to Saloniki was to consult local authorities and capitalists with a view to determining the possibilities of forming a company composed of Greek and German interests for the establishment of an airplane service between Saloniki and Athens and between Saloniki and other Balkán capitals. The plane departed shortly after its arrival, however, without Mr. Ryssel's having attained any definite results.

The chief of staff of the Third Army Corps has confirmed the report that foreign airplanes are still forbidden to land or even pass over the territory of the Third Army Corps, which includes all of central and western Macedonia from the Struma River on the east to the Bulgarian, Yugoslav, and Albanian frontiers, this area being considered a "war zone."

Such prohibitory measures prevent the establishment of commercial air lines in these sections of Macedonia, but the agents of the Adria Aero-Lloyd in Saloniki express the opinion that the original plan of the company has not been definitely abandoned and that further attempts to extend their operations to Greece will be made when conditions become more settled.

In southern Greece two other European aerial transport companies, one French and one Italian, have been more successful in establishing a foothold.

Although the Societe Messageries Transaeriennes has not as yet commenced operations in Greece, its contract is still valid, and it is expected to begin work on the necessary installations in the near future.

The greatest progress toward the development of a commercial air line in Greece has been made by an Italian company known as the Societa Anonima Aero Espresso Italiana, whose head offices are in Rome.

The Societa Anonima Aero Espresso Italiana, on September 19, 1924, concluded negotiations with the Greek Government for an air port for seaplanes to be located somewhere in the vicinity of Athens, to be used as a halfway station in an air mail and passenger service between Brindisi, Athens, and Constantinople.

Work was started on this somewhat ambitious undertaking in the summer of 1925, and the company now has, in addition to approximately 1 acre of made land, a large steel hangar of sufficient size to comfortably accommodate two 10-passenger flying boats or four smaller mail planes; reinforced concrete repair shops, smithy, storerooms, power house, and aerographer's office; underground gasoline and oil reservoirs; and a two-story reinforced concrete building, which when completed will house the customs, baggage room, ticket office, passenger waiting rooms, and general offices. The whole is inclosed by a concrete wall. There still remain to be erected three more hangars like the one already built, and a system of powerful flood lights will be installed for night service.

Up to the present time no fixed flying schedule has been adopted. The company owns in all 22 planes, of which five are in full commission and have in the past made irregular trips between Brindisi, Athens, and Constantinople, carrying mail and a few passengers.

A regular service, however, was inaugurated on February 1, 1927, consisting of two planes a week each way between Constantinople and Brindisi, stopping en route at Athens. After June 1 a daily schedule is planned.

At the outset the company will employ only two types of planes, both of Italian design and manufacture. The smaller of the two will be a single-motored biplane of the flying-boat type, known as the "S 16 Savoia Marchetti." It will have a wing spread of approximately 47 feet, will accommodate two pilots, and will be devoted exclusively to the transport of mail and freight when there are insufficient passengers to warrant the larger planes making the journey. Or they may be used to supplement the passenger planes should the volume of traffic require such additional service.

With two pilots and fuel for six hours' flight the "S 16s" will have a useful cargo load of about 1,500 pounds. Their cruising speed will be around 108 miles an hour, although capable of a maximum flying speed, fully loaded, of 120 miles an hour.

The larger passenger planes will be of the monoplane type, the single 79-foot wing being supported directly on two pontoonlike floats, and will be known as the "S 55 Savoia Marchettis." They will be equipped with twin motors mounted in tandem on top of the wing.

Each float will accommodate five passengers in addition to their baggage, mail and freight, and one member of the crew. The planes will be manned by two pilots, a mechanician, and a radio operator, the pilot's cockpit being in the wing itself, which also provides a means of communication when necessary between the two floats.

The total weight when fully loaded and fueled for six hours' flight will be 7 metric tons, of which 2 tons will consist of passengers, crew, and cargo. The cruising speed will be about 102 miles an hour, although the maximum flying speed, fully loaded, is estimated at 120 miles an hour.

If the line proves successful it is planned to put into service some time during the latter part of 1927 a number of planes larger than those described above, capable of carrying 30 or more passengers each. Specifications, however, are not as yet available.

The "S 55 Savoia Marchetti" will be powered with two A. S. Isotta Frascini 12-cylinder, V-type, water-cooled motors, each weighing 925 pounds dry, and developing 500 horsepower at 1,850 revolutions per minute. The bore is 5.51 inches, the stroke 5.91 inches.

ITALY

A. NAVAL

1. Fleet organization.

The organization of the fleet is altered as from March 1, 1927. The new organization is as follows:

COMMANDER IN CHIEF OF THE FLEET

Cavour (Battleship). The commander in chief of the fleet is also commander of the First Squadron.

FIRST SQUADRON

Battle Division: *Doria* (battleship; flagship), *Duilio*, *Dante*, *Cesare*.

First Destroyer Division: *Marsala* (flagship; will be soon replaced by the *Brindisi*).

First Destroyer Flotilla: *Mirabello*, (flotilla leader).

First Squadron: *Fabrizi*, *Medici*, *La Masa*, *La Farina*, *Carini*.

Second Squadron: *Papa*, *Prestinari*, *Chiantore*, *Montanari*, *Cascino*.

Third Destroyer Flotilla: *Riboty* (flotilla leader).
Fifth Squadron: *Sirtori, Orsini, Acerbi, Stocco.*
Sixth Squadron: *Abba, Pilo, Dezza, Schiaffino, Mosto.*
Division reserve: *Aquila, Cosenz, Bassini, Chinotto, Cairoli, Nievo, Missori.*

NOTE.—Units from the First Division are detached in rotation, each for a period not longer than two months, for service in the naval districts and at Tripoli.

Submarine division: *Pacinotti* (flagship; submarine tender).
First Submarine Flotilla: *Mocenigo* (flotilla leader).
First Squadron: *Micca, Barbarigo, Galvani, Marcello, Provana, Torricelli, Emo, Nani, X 3.*
Second Squadron: *N 3, N 1, N 2, N 5, N 4, N 6.*
Second Submarine Flotilla: *F 19* (flotilla leader).
Third Squadron: *F 1, F 6, F 7, F 16, F 17, F 18, F 19, F 20, F 21.*
Fourth Squadron: *F 2, F 5, F 10, F 13, F 15.*
Fifth Squadron: *H 4, H 1, H 2, H 3, H 6, H 7, H 8.*
Group of submarines for the upper Adriatic: *F 12, F 14, Argonauta.*
M. A. S. (submarine chaser) Flotilla: *Sorrento;* three squadrons of M. A. S. with torpedoes, one squadron of antisubmarine M. A. S.

SECOND SQUADRON

Ancona (light cruiser), flagship, with the assistant commander of the fleet, commanding the Second Squadron and the light cruiser division.
Light Cruiser Division: *Ancona, Bari, Venezia, Premuda, Tigre, Leone.*
Division reserve: *Taranto, Rossarol.*
Second Destroyer Division: *Quarto* (flagship).
Second Destroyer Flotilla: *Falco* (flotilla leader).
Third Squadron: *Confienza, Solferino, Palestro, San Martino.*
Fourth Squadron: *Calatafimi, Castelfidardo, Curtatone, Monzambano.*
Fourth Destroyer Flotilla: *Pantera* (flotilla leader).
Seventh Squadron: *Ricasoli, Sella, Nicotera, Crispi.*
Eighth Squadron: *Sauro, Manin, Nullo, Battisti.*
Division reserve: *Pepe, Poerio, Audace, Ardimentoso.*

NOTE.—The above reorganization has been made with the object of allowing for the new light cruisers, leaders, destroyers, and submarines now passing into service.—Ed.

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2. *New destroyer characteristics.*

The 12 destroyers (*Odero* type), for which contracts have just been let, are to be 2,000 tons and have a speed of 38 knots.

NOTE.—This will make a total of 25 modern destroyers Italy now has under construction. In addition, she has just completed three more. All of these craft are characterized by high speed (35 to 38 knots) and by large gun power (four 4.7-inch, C. L., twin mounts).—Ed.

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3. *Commission status of naval ships.*

As far as personnel is concerned, the status of Italian war ships is as follows: (*a*) In armamento, (*b*) disponibilitá.

(*a*) In armamento means that the ship may be:

In armamento (in full commission).

In armamento ridotto. This refers only to the administration (pay, supplements, mess allowance, etc.), but the personnel in both cases corresponds with the full allowance on board, the ship being ready for orders. (The above two classes correspond to our "in full commission.")

In armamento ridotto con tabella di disponibilitá (that is, destroyers for departmental service and ships for local use), when the units are employed occasionally and are equipped with reduced personnel in accordance with the allowance for ships used in this service. (Corresponds either to our "in reduced commission" or "in commission in reserve.")

In armamento con tabella speciale (royal yacht, etc.), units commissioned occasionally for special service. (We have no corresponding designation; a temporary condition.)

(*b*) In disponibilitá. In this second status, the ship may be:

In disponibilitá with personnel reduced according to the class of ship and category of personnel. The ship may be in repair status or not ready for immediate service. (Corresponds to our "in service, not commissioned," or to "in commission in ordinary.")

In disponibilitá con tabella di armamento. When the ship, in service but not commissioned, is equipped temporarily for short periods, for engineering trials, etc. (Corresponds to "in service, not commissioned.")

Ships in allestimento have only a skeleton crew aboard; that is, men enough to guard it. (Corresponds to "out of commission" and is applied to vessels building.)

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4. Naval construction policy.

The following statement was recently made before the lower chamber by the Undersecretary of State for the Navy, Admiral Sirianni, in regard to new naval construction:

As is known to the house, funds for naval construction were increased since last year's budget by 160,000,000 lire.

The naval program, which was already under construction or on order since 1923–24, is known to all. The first of these units is now in service; others are being tried out; others launched or about to be launched.

With the balance left and the new activities laid out up to the 1929–30 budget, it has been possible to begin a new and modest program and avoid sudden changes in the work of reproducing our fleet.

This supplementary program consists of:

(*a*) Three submarines already ordered; one of large cruising range and two of medium range, all three equipped for mine laying.

(*b*) Six submarines about to be ordered, of medium cruising radius, mostly adapted for Mediterranean service, and of which class eight of the preceding program are well advanced in construction.

(*c*) Twelve destroyers of 2,000 tons, all ordered several months ago.

Every navy holds that it is building the best and most efficient ship of each class. We are not going to enter a race but we assert that these ships—speed, 38 knots; armament, 6 guns and 6 torpedo tubes—are satisfactory in every respect.

If 38-knot commanders, flotilla chiefs, or admirals are needed, we are sure we can produce them. [Laughter.]

We also have under consideration orders for four scouts of about 5,000 tons each. They are to be constructed with a view of cooperating with other ships of the fleet. They will have good protection, good guns, notable speed, and are well laid out.

These ships also call for commanders who realize that speed is the greatest of offensive arms.

The speaker, after having listed the ships actually in construction, and while keeping in mind the amount disposable which may remain from the present building program and which will be employed in the supplementary program, said that, as soon as possible, new sums must be set aside to renew the fleet units and develop them in accordance with the country's necessities.

I can assure you that the State in this field will make all sacrifices possible, keeping contact in a general way with the building plans approved in 1923.

It is the firm intention of the chief of Government, in order to guarantee the healthy continuation of a reasonable development, that our constructive effort be steady and methodical and not a jumpy one.

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5. *Personnel difficulties.*

The Italian press has on several occasions taken considerable pains to explain to its readers that the United States stand on limitation of armaments is entirely hypocritical. It is stated that the United States has difficulties in recruiting, that our ships are seriously undermanned, and even should we be willing to spend the enormous sums which it costs in the United States to build cruisers, no crews could be obtained to man them. This view is seriously and widely held not only by the lay public but even by Italian naval officers and shipbuilders. The United States is credited with a desire to hold all nations back in the matter of armaments, as we can not hope to keep up with the procession.

It is interesting to consider what connection this published view may have with the present difficulties encountered by the Italian Government. The 18 months' draft of universal service leaves little continuity and few stay on to make any service career. Thus there is a serious shortage of competent petty officers. There is now considerable publicity in an endeavor to enlist 400 petty officers in aviation.

Furthermore (and applying to all three branches, army, navy, and air force) a decree has been promulgated whereby all those who have a certain standard of education must (not may) take the officers'

course. The immediate effect of this is to require from such a period of service of at least 2 years, whereas the usual term of universal service is but 18 months. Following this term of 2 years or more the interested person is only provisionally released to civil life.

B. AERONAUTICAL

1. Dirigibles built or building.

As a consequence of the complete loss of dirigible *N–2* last summer, Italy had only three dirigibles left, viz, the *Esperia* (former German *Bodensee*), the P. M. semirigid type, 186,000 cubic feet, and the small Mr semirigid, 36,000 cubic feet.

Since that time, the Mr dirigible has been dismounted and the manufacture of a new envelope started. As a consequence, there are at present only two dirigibles in flying condition in Italy, viz, the *Esperia*, rigid type; the P. M. semirigid type (to be dismounted soon).

The dirigibles near completion are: The *N–4*, semirigid, 672,000 cubic feet (sister ship of *N–1*); the *Mr–1*, for which a new envelope has been made; the *Mr–2*, sister ship of the *Mr–1*. These three ships will in all probability be ready in a month.

The dirigibles in early stage of construction are: The *N–1*, which flew over the North Pole and which is now being reconditioned. The *N–5*, semirigid, 1,008,000 cubic feet.

The dirigibles in project are: The *N–6*, semirigid, 1,836,000 cubic feet (to be increased to 1,944,000 cubic feet).

NOTE—Dirigible "N–2" was lost at sea and "N–3" was sold to the Japanese Navy and is now in process of erection in Japan.—Ed.

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2. Bombing practice.

A bombing test, really a show for Italian press correspondents in aid of publicity, was conducted at Furbara, the experimental bombing field, about 40 miles northwest of Rome.

Ceiling was low. Bombing was carried on at an altitude of about 3,500 feet. Six Caproni 80 were used, four fitted with Asso engines and two with Lorraine Dietrick. Apparently all bombing was done by three officers. Largest bomb load carried was 2,800 pounds.

Four planes were fitted with manual release and two with electrical. The latter was used for a ripple effect salvo. Time interval about one-fifth second. There was one failure to release (manual). The whole show consumed two hours.

The targets were a destroyer deck plan, a bridge plan, and actual section of railroad siding.

Twenty-eight 40-pound bombs dropped in series, cross wind, destroyed the railroad. Ten 280-pound bombs dropped in series cross

wind scored several direct hits on bridge target. Ripple effect was used. Three 670-pound bombs dropped upwind scored direct hits on ship target. One 670-pound bomb was a dud. One 1,400-pound bomb, down wind fell "over." One 1,350-pound bomb a dud. One 2,140-pound bomb down wind slightly "over."

3. New observation seaplane.

The *S–62* experimental observation seaplane is a wooden biplane, fabric-covered. Breaking factor is very high, over 10, in view of the fact that this machine is also intended for acrobatics. It is engined by a 500-horsepower Asso motor.

The seaplane is armed with four machine guns—two front and two rear—on flexible mounts, twin arrangement. It carries a bomb load of 770 pounds in addition to full equipment.

The boat is very robust and well stream-lined. The particular shape of its bottom, which is the result of accurate hydrodynamics experiments, renders take-offs easy and rapid, with total useful load on board.

Characteristics

Span	feet	50.85
Height	do	13.12
Length	do	36.08
Wing surface	square feet	699.40
Weight empty	pounds	4,180
Maximum useful load	do	3,300
Total weight	do	7,480
Maximum speed	miles per hour	130.5
Minimum speed	do	53
Climb to 3,000 meters	minutes	21
Practical ceiling	feet	17,385
Endurance (6 hours)	miles	745
Subdivision of useful load:		
Crew of 3	pounds	528
Fuel	do	1,716
Bombs	do	770
Armament and equipment	do	286
		3,300

4. New Fokker plane.

Recently a visit was made to the Officine Ferroviarie Meridionali, of Naples, for the purpose of inspecting workmanship and details of the Fokker RO1 now under order for the Italian Air Ministry. The company corresponds somewhat to our Pullman Co. in that its main line of manufacturing is directed toward railroad rolling equipment, excepting engines. The Romeo Airplane Co. is a division

of the parent company and is organized to manufacture planes under Fokker patents.

At the present time 43 planes are on order, 13 being Fokkers and 30 of the CR 1 and 2 Fiats. The latter present no new features, while, on the other hand, the former are of interest in that this is the first time Fokker has entered the Italian field under nationalized aspect.

The RO1 itself is familiar under the native (Holland) designation CV–D and E. The same fuselage is used for both machines, the wings being interchangeable. All accepted types of engines may be used in this fuselage. The engine bearers, and in fact the whole bay forward of the fire wall, are separately made and then bolted into place. To change types of engines one changes the whole engine bay to correspond. The minimum power necessary is 350 horsepower, while the usual equipment entails use of 400 to 500 horsepower engines.

The workmanship appears to be very good. (In this connection it is of interest to know that a necleus of skilled workers and "key" men were brought down from the parent plant in Holland.) The fuselage is standard Fokker welded-steel tubing. Welding is tested by destruction of a certain percentage of parts. The steel skeg is steerable in a neat and simple manner. The bottom of the skeg is fitted with a sheet of steel like an inverted steel helmet with a crease or keel fore and aft. Rotating the cylindrical skeg causes this keel or rib to lie at an angle which tends to steer the ship. This form of skeg could be used to advantage both on the ground and on carrier decks.

Wings are (bottom, veneer; top, fabric) of wooden framing and built up box section main spars. All fuel is carried in the upper wing, feeding by gravity. Fuel tanks are of sheet copper, riveted, with solder run over rivet heads.

Engines used are Italian (Romeo-Milan) built Jupiter series N. The engines are purchased separately by Government and furnished the Naples firm. Variable timing device is used for altitude control. Between the two push rods (each operating dual valves in head) is another rod, which carries a plate pivoted top center. This plate carries rocker-arm fulcrums; hence clearances are maintained in compensation for expansion. I was told no possibility existed for rocker arms to fall out. Carburetors, three in number and separately adjusted, are fitted, each supplying one bank of three cylinders at distance of 120° from each other. Failure of one carburetor still insured altitude level and that without vibration. Starting is by compressed air at 33 pounds pressure. Reservoir tank and hand pump fitted into plane. Starting magneto fitted. Spark is fixed.

One fixed machine gun is fitted. Ordnance and radio is supplied by Government for installation.

Longerons are linen wrapped, as are two wooden battens on sides of fuselage. This is to protect chaffing and flutter of fuselage covering.

Instruments are of usual type, except that two oil-temperature gauges are used; one inlet, the other outlet. There is a large oil reservoir (brass) with small air-cooled chamber fitted with shutters below cowling. Shutters are closed against a spring so that any failure of control holds cooler action open.

Fixed tank of carbon monoxide, with leads to all carburetors, installed in bottom engine bay for fire protection. A thermostatic device warns pilot of fire forward by blowing out a "jack-in-the-box" arrangement in center of instrument board. This device jumps out almost 8 inches and is painted crimson.

Plane has excellent visibility, particularly for deck landings. Landing gear standard Samson cord-wound axle. Sand loading tests exceeded expectations. Flight tests will be made at Campo di Capodichino (a few miles north of Naples), where the Government has allowed the company use of a field.

JAPAN

A. NAVAL

1. Local maneuvers, Kure Naval Station, March 9 to 12, 1927.

Mission.—The defense of Kure against a combined sea, land, air attack. To exercise the internal organization of the naval station on a war footing.

Forces—Sea.—Fuso, Yahagi, Kurasaki; thirteenth destroyer division (*Nos. 4, 2, 8, 6*); fifteenth destroyer divisiin (*Susuki, Fuji, Hagi. Tsuta*); sixth submarine division (*Ro–57, 58, 59*); eleventh submarine division (*Ro–51, 53*); fourteenth submarine division (*Ro–26, 27, 28*); fifteenth submarine division (*Ro–16, 14, 15*); sixteenth submarine division (*Ro–17, 19, 18*); sixth mine sweeper division; mine layers.

These forces were divided between the attacking and defending forces.

Land.—Attacking force. One infantry battalion and one machine gun company of blue jackets.

Defending force. One machine gun company of blue jackets.

Air.—Three Hansa seaplanes.

The maneuvers started at 8 a. m. March 9, 1927. The operations of the sea forces engaged extended from Hiroshima Bay to the Sea

of Suwo and the Sea of Iyo. The landing group of the attacking force was transported in mine sweepers to Yano, where a landing was effected. The land forces were then exercised for three days in the vicinity of Karda-ichi, Naka Kurosa, and Honjo (small towns in the rear of Kure).

The maneuver was discontinued at 11 a. m., March 12, 1927.

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2. *Accident to the battle cruiser "Hiyei."*

According to press accounts, the battle cruiser *Hiyei*, while engaged in maneuvers off Mitajiri, ruptured a main steam line and proceeded to Kure March 3, for urgent repairs.

NOTE.—The "Hiyei" is one of the four battle cruisers of the "Kongo" class of 27,500 tons.—Ed.

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3. *Mast alterations.*

Alterations to the foremast of the battleship *Hyuga* were completed on February 2, 1927.

The battle cruiser *Kirishima* will undergo alterations to her foremast beginning March 5. It is expected that the reconstruction to her mast will be completed in about six months.

Alterations to the foremast of all battleships and battle cruisers will be completed within the next two or three years.

NOTE.—These alterations consist in replacing the relatively light tripod mast by a heavy structure similiar to the foremast of the "Mutsu." The forward stack is also carried further aft.—Ed.

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4. *New destroyers.*

Destroyer *No. 28* under construction at the Uraga Shipyard, Uraga, was completed on March 25, 1927.

Destroyer *No. 32* which was under construction at the Sasebo Navy Yard was completed on March 13, 1927, and placed in commission.

Destroyer *No. 34* was launched at the Fujinagata Shipyard, Osaka, on March 4, 1927.

NOTE.—The above craft are sister ships (21 in the class) of 1,445 tons, mounting four 4.7-inch guns, six 21-inch torpedo tubes, with speeds of 34 knots. All but three of the class are completed. In addition, Japan has under construction or authorized and appropriated for, 15 boats of 1,800 tons and four of 1,700 tons.—Ed.

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5. *Destroyers in collision.*

While the destroyer *Momi* was at anchor off Yu-u recently, the destroyer *Sumire* struck the stern of the *Momi* damaging the side

of the *Momi*, which was forced to return to Kure to undergo necessary repairs. The repairs will take about 10 days.

NOTE.—These boats are of 850 tons, mounting three 4.7 inch guns and four 21-inch torpedo tubes, with a designed speed of 31.5 knots.—Ed.

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6. Submarine casualties.

On March 8, 1927, there was an internal explosion in the submarine *I–52* while that vessel was engaged in torpedo practice off Mitajiri. One officer and six men were seriously injured. The *I–52* proceeded immediately to Kure for repairs.

The accident on the *I–52* was due to a battery explosion.

Newspaper reports state that the *I–51* on March 13, 1927, returned to Kure on account of engine trouble, reported to be a cracked cylinder of a main engine.

The submarine *I–3* while engaged in torpedo practice off Mitajiri developed trouble with her port engine and was forced to return to Kure on February 16. The submarine *I–2* also developed trouble with her port engine and returned to Kure on February 16 to undergo repairs.

The submarine *Ro–61* developed engine trouble while engaged in torpedo practice off Yu-u on February 8 and returned to Kure for repairs.

NOTE.—The Japanese submarine service is continually beset by such accidents as given above. The above are all of the latest classes of Japanese submarines. "I–2" and "I–3" are of 1,970 tons; "I–51" and "I–52" are of 1,400 tons; "Ro–61" is of 998 tons.—Ed.

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7. Itinerary of training squadron.

The following is the itinerary and the officer personnel assigned to the ships of the training squadron *Iwate* and *Asama* during the 1927 foreign cruise:

	Arrive	Depart
Yokosuka	-------	June 30
Honolulu	July 17	July 20
San Francisco	July 31	Aug. 5
San Pedro	Aug. 7	Aug. 11
Balboa	Aug. 26	Aug. 28
Colon	Aug. 28	Aug. 31
New Orleans	Sept. 6	Sept. 9
Havana	Sept. 12	Sept. 15
Boston	Sept. 21	Sept. 26
New York	Sept. 28	Oct. 6
Annapolis	Oct. 8	Oct. 13
Norfolk	Oct. 14	Oct. 17

	Arrive	Depart
Colon	Oct. 26	Oct. 26
Balboa	Oct. 26	Oct. 29
Manzanillo	Nov. 7	Nov. 14
Mazatlan	Nov. 16	Nov. 18
Hilo	Dec. 3	Dec. 6
Tateyama	Dec. 26	Dec. 27
Yokosuka	Dec. 27	

Rear Admiral O. Nagano, in command; Commander T. Miki, on staff; Lieut. T. Takata, on staff; Lieut. Commander Y. Ono, aid; Capt. (Engineer) Y. Takenouchi fleet engineer; Commander K. Inouye, on staff; Lieut. Commander (Engineer) T. Sawa, on staff.

OFFICER PERSONNEL

Iwate (flagship):

Capt. K. Isumi, commanding officer.
Commander C. Takahashi, executive officer.
Commander S. Fukutome, navigator.
Lieut. Commander K. Kikuchi, gunnery officer.
Lieut. Commander K. Noda, seamanship and division officer.
Lieut. Commander M. Yusawa, assistant gunnery and division officer.
Lieut. S. Fukatani, division officer.
Lieut. J. Ikeda, division officer.
Lieut. H. Kameta, division officer.
Lieut. (Junior Grade) S. Nagata, on board.
Lieut. (Junior Grade) K. Fujio, on board.
Lieut. (Junior Grade) Y. Yoshida, on board.
Lieut. (Junior Grade) Y. Sugiyama, on board.
Commander (Engineer) S. Namekawa, chief engineer.
Lieut. Commander (Engineer) H. Miyashita, division officer.
Lieut. (Engineer) S. Kawazu, division officer.
Lieut. (Engineer) K. Mine, division officer.
Ensign (Engineer) S. Ota, on board.
Ensign (Engineer) T. Izawa, on board.
Lieut. Commander (Medical) K. Kawate, medical officer.
Lieut. (Junior Grade) (Medical) T. Noda, on board.
Lieut. Commander (Paymaster) S. Arakawa, paymaster.
Ensign (Paymaster) K. Aoyama, on board.
Lieut. (Junior Grade) S. Suzuki, on board.
Lieut. (Junior Grade) K. Shimamura, on board.
Lieut. (Junior Grade) M. Yamada, on board.
Lieut. (Junior Grade) T. Inuzuka, on board.
Lieut. (Junior Grade) (Engineer) T. Higo, on board.

Asama:

Capt. K. Fujiyoshi, commanding officer.
Commander K. Madarame, executive officer.
Lieut. Commander S. Kajioka, navigator.
Lieut. Commander T. Okumoto, gunnery officer.
Lieut. Commander A. Endo, seamanship and division officer.
Lieut. Commander M. Ogata, assistant gunnery and division officer.
Lieut. I. Kume, division officer.
Lieut. S. Sadakata, division officer.
Lieut. K. Shinoda, division officer.

Lieut. (Junior Grade) M. Suzuki, on board.
Lieut. (Junior Grade) T. Tanii, on board.
Lieut. (Junior Grade) M. Shimizu, on board.
Lieut. (Junior Grade) S. Yunoki, on board.
Lieut. Commander (Engineer) H. Sakurada, chief engineer.
Lieut. Commander (Engineer) N. Nishioka, division officer.
Lieut. (Engineer) Y. Miyasaki, division officer.
Lieut. (Engineer) F. Hisayasu, division officer.
Ensign (Engineer) Y. Fukutani, on board.
Ensign (Engineer) S. Ishibashi, on board.
Lieut. Commander (Medical) T. Mizuno, medical officer.
Lieut. (Junior Grade) (Medical) T. Murakami, on board.
Lieut. Commander (Paymaster) T. Yoshimura, paymaster.
Lieut. (Junior Grade) (Paymaster) Y. Yoshiki, on board.
Lieut. M. Sawabuki, division officer.
Lieut. (Junior Grade) M. Kataoka, on board.
Lieut. (Junior Grade) Y. Watanabe, on board.
Lieut. (Junior Grade) K. Noto, on board.
Lieut. (Junior Grade) M. Kawasaki, on board.
Lieut. (Junior Grade) (Engineer) K. Dome, on board.
Lieut. (Paymaster) C. Maida, on board.

B. AERONAUTICAL

1. Oppama Naval Air Station.

PURPOSE

Service operating and coastal patrol station; training station for advanced work in radio, bombing, torpedo, and reconnaissance; navigation training station, advanced night flying; shore base and training station for fleet air force attached to *Hosho;* torpedoplane station.

NEW CONSTRUCTION

Steel frame of large seaplane hangar is being erected on upper end of beach near land field. Steel frame of machine shops, about 100 by 60 feet, under construction between landplane hangars and sea wall. Small addition being made to foundry. New concrete earthquake-proof aprons are being laid in front of seaplane hangars.

PERSONNEL

Commanding officer, Commander M. Tsutsumi. Officer pilots, 50; enlisted pilots, 30; enlisted men, 800; civilian employees, none. Five operating squadrons are stationed here, exclusive of squadrons attached to *Hosho.*

BUILDINGS AND EQUIPMENT

Hangars.—One steel and concrete hangar: capacity, 6 seaplanes set up: at present used for general storage purposes. Three steel and concrete hangars, large: capacity, 20 seaplanes each set up. These hangars at present house Hansa seaplanes and F–5 flying boats. Five steel-frame corrugated-iron hangars: capacity, 6 pursuit-type planes each. These hangars house planes belonging to the *Hosho*. Two Besseneau hangars: capacity, 6 pursuit-type planes each. One balloon hangar, large, wood: capacity, 3 balloons.

Hospital.—Small wood building.

Barracks.—One two-story wood building: capacity, 400. One two story wood building; capacity, 400.

Storerooms.—Several small wooden buildings adjacent to headquarters building. Two medium-sized iron and concrete buildings on beach near erecting hangar.

Meteorological station.—Small wooden building in the rear of station on top of hill.

Pigeon loft.—Small wooden building on hill.

Ramps.—Seven concrete ramps. Ground between hangars and ramps is concreted.

Flying field.—About 1,000 yards by 600 yards: filled-in ground, level, well drained, partly sodded, fairly smooth. Approach is good from north to northeast and from southwest to southeast, all over water. Buildings and hills obstruct approach from other directions.

Torpedo range.—Torpedo range extends to northward of adjacent breakwater.

Fuel tanks.—Eight 4,000-ton tanks are on hill well beyond station. Gasoline stowage is underground in the hill behind radio station. Gassing is done from 5-gallon tins and from small tank truck.

Shops.—Engine overhaul: Two rooms 20 by 12 feet and 30 by 12 feet: about 12 engines undergoing overhaul, but only a few men at work.

Machine shop: Very small, about 9 by 15 feet: 10 small machines. No work going on, but about 12 men in shop.

Instrument shop: Small shop next to machine shop: not capable of much repair work.

Metal smith and foundry: In one building, 40 by 20 feet: no work going on; fairly well equipped.

Carpenter shop: Small shed, 40 by 20 feet: equipped with three small machines. About 15 enlisted men in shop. The only work in progress was pontoon repair work.

Searchlights.—Two 48-inch searchlights: one of these on the southwest and the other at the northwest corner of the flying field.

Flood lights.—About 24 on south side of land field.

Mooring mast.—Small steel Y-shaped mast in southwest corner of field.

Plane lights.—Several planes are equipped with small searchlights for night flying.

Engine starters.—Two propeller spinning machines were seen mounted on two Ford chassis.

Pistol range.—Short range in northeast corner of field where firing is done into hillside. Small wooden building near butts.

Planes.—Mitsubishi No. 1 (pursuit planes), 6; Mitsubishi No. 4 (torpedo planes), 12; Hansa type seaplane, 12; F–5 flying boats, 8; Fairey pintails, modified (Japanese type 14), 3.

Balloons.—Three kite balloons seen.

NOTES

No plane spares were seen other than some old parts taken from disassembled planes in the assembly hangar. Several motors were seen in storage in small building outside the assembly hangar, and it was stated that they were overhauled and ready for issue. Apparently the only local repair work is that done on engines and pontoons. Metal pontoons were noticed on one Hansa seaplane. No landing lights were seen on the beach. Flying gear (helmets, goggles, and suits) is quite modern and satisfactory.

In general conversation the following was stated:

Pilots do not have any distinguishing insignia.

Pilots must make one flight per month for pay.

Pilots on this station average 100 hours per year.

Pigeons are in use for seaplanes.

Much night flying is done in landplanes.

Officer pilots are much more satisfactory than enlisted pilots.

In general, the officer pilots seemed to be an intelligent and enthusiastic group of men. The station gave the appearance of being moderately efficient; planes were clean and well kept, especially the seaplanes. The Mitsubishi No. 4 torpedo plane, without load, seemed to take off lightly with a very short run and climbed remarkably well. The Mitsubishi No. 1 seemed to be rather heavy on the take-off. All approaches for landings in landplanes seemed to be very flat and slow. Seaplane landings and take-offs observed seemed to be normal.

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2. *Aviation notes from Japanese press.*

"Osaka Mainichi":

Five 1925 type scout seaplanes built by the Aichi Clock Works, Nagoya, were shipped to Yokosuka aviation station several days ago. The planes are equipped with 400-horsepower engines.

This type of plane is an improvement over the pure Japanese type designed by Lieut. Commander Akaishi, who was killed in an airplane accident off Yokosuka some time ago.

NOTE.—At the Aichi Clock Works in May, 1926, the only type of plane manufactured was a modified type of the Hansa seaplane.

"Kure Nichi Nichi":

Three Hansa seaplanes from the Hiro air station operated with the First Submarine Squadron and the First Destroyer Squadron during torpedo practices in Hiroshima Bay, February 17 to 21 and February 24 to 28.

"Kure Nichi Nichi":

The Yokosuka Aviation Corps held machine-gun target practice over Tokyo Bay from February 14 to 28. These practices were held at a height of about 2,100 feet. Bombing practices were held during the same period.

"Kure Nichi Nichi":

A long-distance flight was made between Yokosuka and Hiro on March 15. The planes returned on the 17th of March.

LATVIA

A. NAVAL

1. New submarines.

According to a report in the Riga "Rundschau" recently, the Lettish gunboat *Virsaitis* has left for France, carrying on board the commander of the coast squadron, for the purpose of bringing back the two new submarines, *Ronis* and *Spidola*, to Libau. The acquisition of these submarines will make it necessary to have a mother ship. The plan to construct a special ship for this purpose was abandoned by the Ministry of War because the Navy Department placed one of its tugs at its disposition for this purpose. The ocean tug *Varonia* (former German steamer *Passat*) will therefore be converted to a submarine mother ship.

NOTE.—The "Ronis" and the "Spidola" were recently completed in a Havre shipyard. They are of 440 tons.—Ed.

NETHERLANDS

A. NAVAL

1. Maneuvers of the Dutch East Indies fleet.

The following is a summary of the exercises to be held in the Dutch East Indies during the spring of 1927:

From the 5th to the 29th of April most of the fleet in Netherlands Indian waters will take part in naval exercises around the entire

island of Sumatra. The vessels which will be engaged in this are: *Zeven Provincien*, *Java*, *Soemba*, *Flores*, a group of destroyers, and a division of submarines. The outward journey will be made via the east coast of Sumatra and the return via Emmahaven on the west coast.

From the 15th to the 20th of April the ships taking part in these exercises will remain at Sabang and Oeleeleuh.

The temporary air camp will be placed in service from the 30th of March until the 17th of May. This is being done in connection with the trial flights which will take place early in April from Soerabaya and Tandjong Priok to Sabang, in connection with the proposed establishment of a regular air-mail route between these points.

The fleet will remain at Priok from the 29th of April until the 3d of May.

From the 3d to the 14th of May the fleet will continue its exercises, and in these will be joined by the new cruiser *Sumatra* and the submarines *K–II*, *K–VI*, *K–IX*, and *K–X*. From the 14th to the 17th of May the fleet will remain at Priok.

The cruiser *Java* will visit the eastern part of the archipelago from March 1 to 28, going as far as Merauke, New Guinea.

The fleet is expected to return to Soerabaya between the 28th and 31st of May.

NOTE.—It will be remembered that the major portion of offensive Dutch craft are concentrated in the East Indies. It has recently been the policy of the Dutch Government to send all new craft to this station.—Ed.

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2. *German fire-control manufacture in Holland.*

The Hazemeijer Works at Hengelo, Holland, was recently visited. The Hazemeijer plant is ordinarily engaged in the manufacture of electrical apparatus of the conventional type, but after the treaty of Versailles, entered into a 15-year agreement with Siemens-Halske, Berlin, for the manufacture of fire-control gear to German patents. This license has now been running five years. Skilled mechanics, familiar with the Siemens system, were transferred to the Hengelo plant. A considerable quantity of spare parts, as well as jigs and fixtures, were also transferred. It was stated that to date it had not been necessary to manufacture at Hengelo any of the synchronous motors, as there were sufficient on hand from those brought from Germany for current needs. The plant is well housed, with a separate annex in which the fire-control apparatus is assembled.

This firm has supplied the fire-control outfits for the Dutch cruisers *Java* and *Sumatra* and has orders for six destroyer outfits; an outfit has been delivered to Italy and one is in course of manufacture for Sweden; they are also bidding on outfits for the Chilean

and Argentine programs. Fire-control gear for the German Navy is manufactured in Germany.

In the fire-control annex were seen several directorscopes in various stages of assembly and other fire-control instruments and apparatus. In one section of the annex is set up a cruiser-type installation for demonstration purposes.

The construction and machine work are unquestionably excellent. The system is truly autosynchronous. It is rugged and designed to withstand the demands of battle.

The directorscope seen was of the cruiser or destroyer type. It is a combined target-bearing transmitter and directorscope, with separate sights for the target-bearing operator, director pointer, and control officer. The optical features were supplied by the Ziess Optical Co. from Venlo, Holland. The control officer and director pointer have binocular eyepieces, and the target-bearing operator (in this case usually binocular) a monocular with a dummy eyepiece for the eye not being used. The control officer faces the target with the target-bearing operator on the right side of the instrument and the pointer on the left side. The optical features move rigidly together in train. In front of the objective ends of the sights are placed a system of lenses which pivot on a horizontal axis. These lenses alone move in angular elevation. The pointer follows the roll by tilting these lenses through mechanical connections with his handwheel (on the left side of the instrument). A connection, which seems not to have been mentioned in previous reports and which may or may not be a new development, is the clutch arrangement by which the director pointer's elevating lense can be disconnected from the target-bearing operator and control officer's moving lens. This is in case it is considered desirable for the pointer not to try and follow the roll, but to set his directorscope for the middle of the roll and fire as his horizontal wire rolls by, and at the same time permit the target-bearing operator and control officer to keep the target in their fields throughout the roll. In this case either the control officer or the target-bearing operator work their moving lens by means of a knurled handwheel connection located between them and, of course, such movement is not transmitted to the guns. There is a scale near the control officer's eyepiece for reading the director correction. Both the target-bearing operator's and control officer's horizontal lines are graduated in mills to assist in estimating deflection spots. The method of closing the firing circuit by the pointer blowing into a mouthpiece is still retained. The base of the instrument contained the characteristic features of the Siemens design; that is, target-bearing transmitting motors and mechanical and electrical means for correcting for parallax of the battery. There is a cylindrical dial on which is set the approximate range for

the proper correction of parallax. There are dials on which are set the deflection correction, which is transmitted to the battery as part of the bearing. There are dials showing the elevation and bearing being transmitted and a pointer for following in case another station is controlling. No gyroscope or stabilized element nor corrector for trunnion tilt was noticed. The "A. G." gyroscope firing device is not a Siemens-Halske development.

The system of distant central electrical control of the elevation of guns was not demonstrated. However, the electrical range clock or converter, an important feature of the system, was seen. The angular elevation transmitted mechanically and electrically from the directorscope elevation lens is superimposed on the angle due to the predicted range as given by the clock and the combined angle is transmitted to the guns.

A combined "range-finder receiver and range-averaging instrument" was shown. The receiver shows separately the range received from each range finder. There are lights provided which indicate which range finders are operating on the receiver and averaging instrument. Provision is made for cutting out any range finder which is obviously in error, and when this is done the light mentioned above, for the range finder affected, goes out. A push button is provided at the instrument which rings a bell at the range finder to warn the operator that his reading is evidently in error. The range-averaging instrument operates electrically to average the ranges from the range finders that are cut in on it and shows the resulting average range on a dial.

An electrically operated "spot transmitter and receiver" was seen, a pair for range spots and a pair for deflection spots. On the face of the transmitter a separate scale is provided for keeping track of the total amount of spots transmitted. The receivers, in addition to showing the amount and direction of the spot received, show a colored light as a further indication of the direction of the spot; also an electric howler gives warning of the receipt of a spot.

The striking features of the Siemens system are the excellent optical instruments and the rugged autosynchronous electrical system for transmitting target bearing and angle of gun elevation. While designed to operate on 50 volts alternating current the system will continue to function accurately at a considerably reduced voltage. The instrument motors are so installed that it is a simple and quick operation to replace them in case of local difficulty. Great attention is given to securing water-tightness in instruments and electrical apparatus. The system suggests itself as more suitable as an installation for destroyers and cruisers than for capital ships.

NOTE.—See the February "Bulletin" for further information on this fire-control gear.—Ed.

B. AERONAUTICAL

1. Notes on aircraft matériel.

During 1925 and 1926, 9 airplanes were bought by the Dutch Government, which has recently ordered 19 more to be delivered during 1927. Nine planes have also been bought during this period by the Royal Dutch Air Service (K. L. M.), while recent orders for three more have been placed by them.

The nine planes sold to the Government were for the Ministry of the Navy and consisted of four Fairy planes and five Dornier machines. The former, which were purchased during 1925 from the Fairy Aviation Co., of London, were hydroplanes supplied with Napier motors of 450 horsepower of the double-drive type, while the Dornier machines were monoplanes furnished with two Rolls-Royce Eagle motors arranged in tandem formation. The latter were constructed at the Dornier Works at Pisa, Italy, and, following their delivery in the spring of 1926, were shipped to the Indies for the Dutch East Indian Navy.

The recent Government order for 19 planes, which are also for the Dutch East Indian Navy and are to be delivered during 1927, comprise 18 Dornier monoplanes and 1 Fokker flying boat. The former will be of the Dornier-Wal type (bombing plane), fitted with 2 Rolls-Royce Eagle motors of 360 horsepower apiece, and accommodation for a load of 5 men, while the latter Fokker plane is the B III type, equipped with a 450-horsepower Napier Lion engine, for a crew of 3 men. Since the Dutch Government requires that these planes be constructed in Holland, it appears that the local agent for the Dornier Works has arranged with the Nationale Vliegtuig Industrie to have the machines built in the shipyard of Burgerhout at Rotterdam. The local agent for the Dornier Works is the firm of Scholten & Van Gennep, located at Alkmaar, in the vicinity of Amsterdam. This firm will move its office from Alkmaar to The Hague in June, 1927, and is reported to be the local agent of a foreign airplane manufacturer.

The above-mentioned nine planes sold to the K. L. M. were built by the Nederlandsche Vliegtuigenfabriek (Fokker Works) at Amsterdam and are monoplanes of the F VII and F VIIa types. Two of the planes are of the F VII type and seven of the F VIIa type, which is practically the same machine with minor improvements. These planes were built for commercial flying and have accommodation for two pilots and eight passengers. They are fitted with 420-horsepower air-cooled Jupiter engines. The engine bed of the F VIIa type is detachable, just as is the case with all the other types of Fokker machines. As it is fastened to the fuselage by means of only four bolts, any type of motor of about 400 horsepower may be

fitted, such as the Jupiter Series IV and Series VI, the Napier Lion 450 horsepower, the Lorraine-Dietrich 450 horsepower, the Liberty 400 horsepower, the Rolls-Royce Eagle IX, etc.

The K. L. M. orders for three more airplanes have also been placed with the Dutch Fokker Works. Two of the planes are to be of the F VII type described above, while one is to be of the new F VIII type. The latter plane will have a capacity for 15 passengers and has been ordered due to the steadily increasing traffic on the K. L. M. lines necessitating the use of larger planes. The plane is, of course, to embody the same principles of economy, combined with safety, as the F VII. The Fokker VIII is to be equipped with two 420-horsepower air-cooled Jupiter engines and will be able with full load to fly on only one engine. The motors are arranged on each side under the wing. The machine will have 2 pilots and 1 navigator, while the cabin will accommodate 15 passengers. In addition to the large luggage compartment behind the cabin, there is a second compartment in the front of the plane before the pilots' seats. This machine is nearing completion and should be ready within a few months.

The Koninklijke Luchtvaart Maatschappij (K. L. M.) is the only Dutch commercial line in operation and has its administration offices located at The Hague.

The K. L. M. have 12 aircraft in operation at the present time, while 4 aircraft are being held in reserve and 3 are under construction. The number of each type and reference to their carrying capacity, design, and motor are given in the following table:

Design	Motor	Type	Number of planes	Number of passengers
Fokker	Sidley-Puma, 240 horsepower	F II	2	4
Do	do	F III	1	5
Do	Jupiter air-cooled radial engine of 400 horsepower	F III	1	5
	In reserve		4	
Do	Jupiter air-cooled engines of 420 horsepower	F VII	5	8
Do	Do	F VIIa	7	8
	In operation		12	
Do	Jupiter air-cooled engines of 420 horsepower	F VIIa	2	8
Do	2 Jupiter air-cooled engines	F VIII	1	18
	Under construction		3	

During the past year the K. L. M. sold five Fokker planes, type F III, to a Swiss company (Bellaire), and steps are now being taken to sell the rest of the old fleet. It is also interesting to note that the F. K. 33, a large traffic plane with a carrying capacity for 10 passengers and equipped with three Siddley-Puma engines of 240 horse-

power apiece, which was delivered in 1925, is being sold to a foreign company.

DUTCH GOVERNMENT PLANES

It is estimated that the army has about 250 planes in reserve and in operation. This number is comprised of fighters (pursuit), bombers, and scouts for observation and reconnaissance. Most of army planes appear to be obsolete models. On the other hand, the Dutch Navy has about 128 planes, comprised of the following: Seaplanes, 43; land observation planes, 18; scout planes, 17; and training planes, 50. Most of these Government planes were manufactured by the Dutch Fokker Works.

ENGINES AND MISCELLANEOUS SUPPLIES

The N. V. Nederlandsche Vliegtuigenfabriek (Netherlands Aeroplane Works (Ltd.)—Fokker), located at Amsterdam, is the largest Dutch manufacturer of aircraft products. This company used Liberty motors some time ago, but was forced to abandon them, due to the difficulties in securing parts. The Fokker Works, which have decreased their personnel from 1,000 men a few years ago to about 200 men at present, have been obliged to curtail their activities, due chiefly to the fact that Russia is no longer purchasing their planes.

Although production figures for this factory are not obtainable there is some indication of the output by the official trade statistics. These statistics show that the exports of aircraft by the Netherlands dropped from 148 for the first 11 months of 1925 to only 43 for the corresponding period of 1926. Exports for the same periods were made to the following countries:

Country	Number of aircraft		Country	Number of aircraft	
	1925	1926		1925	1926
Dutch East Indies	11	16	European Russia	60	.....
Finland	.....	8	Rumania	50	.....
Switzerland	.....	6	Germany	16	.....
United States	.....	6	Bolivia	3	.....
France	.....	2			
Denmark	.....	2	Total, including all others	148	43
Japan	.....	2			

The above exports were comprised chiefly of Fokker planes. It may also be noted that the 8 planes were produced by the Nationale Vliegtuig Industrie at The Hague and were delivered by them to to the Finnish Government during July and August of the past year.

The N. V. Nationale Vliegtuig Industrie (National Aeroplane Industry (Ltd.)) may be considered as the next important Dutch producer. This company was established in 1922 by the Vickers House

of The Hague, which is a Dutch company representing the British Vickers House of London. The National Aeroplane Industry was organized due to a protest in the Dutch Parliament against the Government's purchase of British airplanes which were supplied by the Vickers House of London through the local representatitve. It appears that this enterprise is strictly Dutch and has no connection with the British Vickers House.

The factory of the National Aeroplane Co. was located at The Hague until the summer of 1926, when the plant was turned over to the Stutz Automobile Co. Their operations are now being conducted in Burgerhout's Machine Febriek en Scheepswerf (an important Dutch shipyard), located at Rotterdam. As mentioned in the first section of this article, they are now building 18 Dornier machines for the Dutch Government. This company still remains, of course, under the direction of the Vickers House at The Hague.

Another small Dutch manufacturer of airplanes is Pander & Zonen, who specialize in the construction of small one and two passenger planes for sport purposes. This firm is principally interested in the manufacture of furniture and produces these planes only on a very small scale in its furniture factory, located at The Hague.

AIRCRAFT ENGINES USED IN HOLLAND

The only American aircraft engines now in use in the Netherlands comprise a few Liberty motors with which a few Dutch military planes at Soesterberg are still equipped. They are considered very good, but difficulties have been experienced in securing spare parts. American aircraft engines are generally regarded very favorably in comparison with those produced in other countries, and if replacement stocks were close at hand larger sales could be expected.

In regard to the Dutch market for American aircraft engines it should also be observed that the Netherlanders prefer these equipped with the magneto ignition system instead of the battery system. Air-cooled engines are likewise preferred to the water-cooled type. The K. L. M. is using air-cooled engines almost exclusively, while the military authorities are also advocating their use in spite of the fact that the Dutch Navy Department's recent order for Dornier planes specifies water-cooled engines.

DUTCH ARMY PLANES

The Dutch Army has on hand for immediate use the following types of planes:

1. D–VII biplane, Mercedes, 160 horsepower; double machine gun firing through propeller.

2. Same plane, but with 185 horsepower motor M. B. W. Maximum speed, 124.28 miles per hour; elevation to 16,400 feet in 18 minutes; ceiling of 22,960 feet; sphere of action, 2½ hours; military cargo, 275.58 pounds.

3. C–I biplane, M. B. W. motor, 185 horsepower; 1 Vickers machine gun, 1 light Machine gun, 1920. Maximum speed, 111.85 miles; elevation to 16,400 feet in 30 minutes; ceiling of 18,040 feet; sphere of action, 4 hours; military cargo, 507.06 pounds.

4. C–IV biplane, Liberty motor, 450 horsepower; 1 Vickers machine gun, 1 light machine gun, 1920. Maximum speed, 136.7 miles per hour; elevation to 16,400 feet in 19 minutes; ceiling of 22,960 feet; sphere of action, 3½ hours; military cargo, 771.61 pounds.

5. C–VI biplane, M. B. W. motor, 250 horsepower; 1 Vickers machine gun, 1 light machine gun, 1920. Maximum speed, 124.28 miles per hour; elevation to 9,840 feet in 14 minutes; ceiling of 16,400 feet; sphere of action, 3 hours; military cargo, 639.33 pounds.

6. C–V biplane, Hispano-Suiza motor, 450 horsepower; 1 Vickers machine gun, through propeller. Maximum speed, 149.13 miles; elevation to 16,400 feet in 20 minutes; ceiling of 22,960 feet; sphere of action, 2 hours; military cargo, 518.08 pounds.

DUTCH NAVY PLANES

HOLLAND

Number	Type	Description	Engine	Remarks
20	Van Berkel W. A. Biplane	2-seater reconnaissance, float plane	B. M. W., 185 horsepower	Training.
9	Fokker C. V	2-seater reconnaissance and light bombing biplane	Hispano-Suiza, 450 horsepower	
17	Fokker D. VII	Single-seater, scout, landplane.	B. M. W., 185 horsepower to be replaced by B. M. W., 300 horsepower	Do.
11	Fokker C. I	2-seater training, landplane	B. M. W., 185 horsepower	Do.
18	Fokker G. III	Do.	Mercedes, 120 horsepower	
2	Pander	Single-seater, landplane	Anzani, 25 horsepower	Engines unsatisfactory.
12	Fokker C. V	2-seater reconnaissance, landplane.	Hispano-Suiza, 450 horsepower.	Building at Amsterdam, ready 1926.

DUTCH EAST INDIES

15	Van Berkel W. A	2-seater reconnaissance, float plane	B. M. W., 185 horsepower	Training.
6	Van Berkel W. B	Do.	Rolls-Royce, 90 horsepower	Do.
4	Fairey III D	Do.	Napier, 450 horsepower	Two for each light cruiser
1	Fokker F. B	2-seater reconnaissance, float plane	Do.	
2	Dornier Wal	Do.	2 Rolls-Royce, 360 horsepower.	
1	Fokker F. B	Do.	Hispano-Suiza, 450 horsepower.	

NOTE.—See the April "Bulletin" for information on the 1927 budget for aeronautics. As in the case of naval vessels, Dutch naval aviation activities center largely in the East Indies.—Ed.

NORWAY

A. NAVAL

1. Construction program of Norwegian Navy.

According to a report in the French press, Norway will shortly appropriate 20,000,000 kronen for the modernization of its fleet. The small vessels *Tordenskjold*, *Haarfagre*, *Norge*, and *Eibsvold* will be reconstructed and will be equipped with new machinery and 5.9-inch guns of long range. The new construction will consist of flotilla leaders, destroyers, submarines, and seaplanes. Various political and technical circles in Oslo are advocating the construction of six flotilla leaders similar to the French *Jaguar* type.

NOTE.—It is believed that the above program is much more ambitious than will actually be undertaken. The modernization of the Norwegian fleet has been under discussion for some time. The renovation of the above coast-defense battleships is being opposed by naval officers, who desire to use this money in other projects.—Ed.

RUSSIA

A. AERONAUTICAL

1. New bomb rack.

[Source: M. I. D.]

The following is a description of a new multiple bomb rack. It has so far only been tested (successfully) at the works and not on an airplane.

The rack consists of a series of separate bomb carriers, so constructed as to hang, in a horizontal position, five bombs of small caliber up to 54 pounds, or two up to 140 pounds, or one of 270 pounds.

In addition the grouping is so planned that for every bomb of each caliber there are two aiming bombs.

The rack consists of two basic girders fixed to the langerons of the wing or to special places on the fuselage. They must be fixed absolutely parallel to the axis of the airplane.

To these basic girders two cross frames are affixed.

The forward frame is affixed in a permanent position, and resembles a steel box, in which there are five locks with mechanism to operate these locks. In front, on the outside, there are five semicircular attachments, which grip the fore portion of the bomb. These attachments have regulating screws, with the help of which the axis of the bomb can be adjusted to the horizontal.

Besides this, in order to avoid any longitudinal oscillation of the bombs, five spring clamps are so arranged in front that they keep the bombs parallel to the axis.

The rear frame can be affixed to the basic girders in any position, according to the length of the bomb. It has five semicircular attachments which grip the ailerons of the bombs and completely prevent any movement of the latter.

In addition in the middle of these semicircular attachments there are clamps which fit into a special slot in the aileron and hold in place the blades of the vane.

The mechanism is worked by means of a lever and lanyard controlled by the bombing airman. When the lever is pulled the lanyard operates on the mechanism of the locks and the bombs are dropped one after the other.

B. MISCELLANEOUS

1. Economic situation and international politics.

[Source: M. I. D.]

The lack of capital, the failure of the new economic policy to stimulate actively trade and production, and the exhaustion of raw-material stocks have influenced the leaders to look outside of Russia for aid in bringing about economic recovery. Nine years of Bolshevist control, with practically no foreign cooperation, have neither reconstituted Russian industry nor produced the enormous grain surplus which is normally the cornerstone of Russian financial policy. The foreign credits and foreign capital necessary for industrial rehabilitation can only be obtained through the creation of confidence abroad in the intention of the Soviet Government to meet its obligations and guarantee the safety of foreign investments in Russia. Until quite recently soviet leaders have been either unable or unwilling to abandon wholly those communistic principles which have precluded normal intercourse with foreign states. The fact that soviet leaders unquestionably realize that world revolution in the near future is extremely dubious, together with their recognized inability to satisfy without outside assistance the economic and political wants of the large mass of peasantry, whose cooperation is not only desirable but necessary for the consummation of any program initiated by those in control, leads to the conclusion that further steps in the "retreat from communism" will be forthcoming.

GENERAL CONCLUSIONS

As compared with conditions in 1920, the Soviet Government has undoubtedly made some progress in bringing Russia back to nor-

malcy, but further improvement depends almost entirely upon the procurement of foreign capital and credits. The present economic structure is not even capable of satisfying the meager peace requirements of the country and it would collapse immediately upon opening of hostilities. While the present army is by no means a negligible factor, the problem of obtaining and transporting supplies would be incapable of solution for a force of any considerable dimensions.

NOTE.—The predicted further retreat from communism would seem to be almost inevitable. All information concerning Russia points to a painful but gradual evolution in process tending toward a more moderate and rational government. The present government, under Stalin (which has been the most liberal to date), is a step in this direction. It is interesting to note that Russia, for the first time since the Lausanne Conference of 1923–24, is now taking part in an international gathering; namely, the Economic Conference at Geneva.—Ed.

SPAIN

A. NAVAL

1. Submarine submersion record.

[Source: French press]

A Spanish submarine, the *B–6*, recently remained under water for 80 hours, although experts had calculated that the limit of endurance would be 36 hours. The feat is said to be a record. The crew was not troubled in any way by the experience and the vessel was in good condition when she reappeared on the surface.

The test was made in the Mediterranean, where the boat spent most of the period of submersion, resting on the bottom of the sea. The return trip to Cartegena, where she was built, was made without rising to the surface. The boat is comparatively small, displacing only 556 tons on the surface; she is 205 feet long and 18 feet beam. Her two sets of Diesel engines give her a speed of 16 knots on the surface. Electromotors are used below water. The Spanish Navy has five other vessels of the "B" type.

B. MISCELLANEOUS

1. Military and political factors.

[Source: M. I. D.]

The year 1926 was marked in a military way by the overthrow of Abd-el-Krim and the subjugation of nearly all of the Spanish Protectorate. It would naturally be supposed that this successful campaign, having been worked out in cooperation with the French, would have the effect of allaying the antagonism of the Spanish for

the French. However, the contrary feeling exists. The Spanish were highly incensed when Abd-el-Krim fled from them and gave himself up to the French; this act showing, they claim, that he was in close touch with the latter and knew exactly what treatment he could expect upon surrender. The feeling in military circles, at least, is highly antagonistic to the French. During recent years Spain has rather leaned toward Italy; both are strongly Catholic, and they are just far enough apart to encourage a cordial feeling. It is believed that some sort of accord over the control of the Mediterranean was entered into by General Primo de Rivera and Mussolini during the past year. Italy seems to be backing Spain's claims for Tangier.

It is frequently stated that in a conflict among European nations, Spain would count upon having England on her side; a Spanish point of view is that England would count upon having Spain with her, because certain Spanish products (iron and copper) are so valuable to England, and, moreover, Spain occupies an important strategic position with reference to the Mediterranean. Spain considers that she would be a most valuable ally for any combination against France for the reason that a mobilized Spanish army near the Pyrenees, even if it never attempted to cross, would be an embarrassing menace to the French.

Spain thinks France her most probable enemy, and studies of a possible conflict have been made under the following assumptions: (1) Without allies; (2) with an ally or allies controlling the sea; (3) with an ally or allies not controlling the sea. The Pyrenees country is rougher and more difficult on the south than on the north; guerrilla warfare in that region is believed by the Spaniards to be a guaranty of their successful resistance to French aggressions in the future, as it has been in the past. Spain's railroads are constructed with a wider gauge than the French for military reasons.

With an ally commanding the sea to assure her supply of essential war materials, Spain considers herself unconquerable.

The general inefficiency that exists in Spain would seriously impede the organizing, equipping, and training of an army for modern warfare. An invasion would probably rouse the spirit of the people to stubborn and long-continued resistance, such as finally overcame the well-organized armies of France. On the offensive it would hardly be possible for Spain to make herself a formidable enemy.

NOTE.—In a naval sense Great Britain has the predominate influence in Spain. Britain will maintain this influence because of the threat which a hostile Spain would be to her at the entrance of the Mediterranean. In relation to France and Italy, Spain holds the balance of power in the Mediterranean. At present she inclines more toward the latter. As evidence of her realization of her new importance she is now building or has authorized two 8,000-ton cruisers, 8 leaders and destroyers, and 16 submarines.—Ed.

SWEDEN

A. NAVAL

1. Report of the navy committee.

The following extracts are from the report of the navy committee, which report was recently published in the Swedish press. This committee was appointed to make a thorough study on the needs of the navy and to submit recommendations based upon its study:

CHAPTER 1

GENERAL REMARKS

The object of the experts has been, it is stated in the first place, to investigate the question of renewal construction for the navy. To begin with, an account is given of the defense bill of 1925 and of the report of the defense committee of the same year relative to this bill. Certain opinions are expressed with respect to these statements and the experts then define their object as being "to investigate, assuming that the navy is to be maintained at the full strength and efficiency which the defense resolution of 1925 provides that it shall attain, the question as to the most suitable composition of the navy—particularly of the coast-defense fleet—both as regards kind and type of ship and the number of ships, as well as to submit on the basis of this investigation a proposal for a program of renewal construction." The attainment of this object is not possible without a previous investigation of the objects of the navy. The experts discuss the matter in a general way and arrive at the conclusion that the general objects of the Swedish Navy are "to uphold the neutrality of the country and to intercept hostile attacks made upon us from the sea."

CHAPTER 4

PLAN FOR THE ORGANIZATION OF THE NAVAL FORCES

This chapter opens with the expression of "General points of view," in which to begin with it is again emphasized that the general objects of our Navy are, in part, to uphold the neutrality of the country, in part to intercept hostile attacks directed against us from the sea. The experts consider the first-named object to be merely a part of the second and adopt the more exacting object as a basis in elaborating the plan for the organization of the naval forces; that is to say, assume the defense of neutrality to be included in the defense of independence.

The question of the organization of the naval forces requires, the experts assert, an understanding of the main nature of their actions in a war. For a small country the obvious course would seem to be to refrain from endeavoring at sea to intercept possible dangers and to confine itself to a defense of the coast itself. It is possible that such a defense may prove effective, provided the coast line of the country is very short and particularly adapted for the purpose. Such geographic conditions do not, however, exist with us. Even with a broader economic framework of naval defenses than that embodied in the defense resolution of 1925, a naval defense limited to certain archipelago areas would entail, first, that one would have to leave several similar archipelago areas undefended and, second, that no protection would be provided

for the open coast. The value which a defended archipelago represents to the country would, in the case of an undefended archipelago, easily pass into the hands of the enemy. The experts therefore consider that the plan for the organization of the naval forces should aim at enabling the navy, in the measure which its strength permits, to in some way or other intervene against all the attacks which are directed against the country in a naval war. This is only possible provided the composition of the navy insures its freedom of movement and enables it to appear at sea. In other words, the forces of the navy, such as they are, should be designed to defend the coast of the country in its entirety and not merely certain local areas of the same.

A naval defense constructed for such purpose can not, of course, intercept all attacks on our country—surprise raids, for example, could probably not be avoided, but perhaps punished—there is likewise no doubt that a very superior enemy who attacks us can reach his goal. The new weapons of naval warfare have, however, undeniably enhanced the possibilities for an efficient navy, even if considerably inferior, to ward off such an attack. At all events an inferior navy operating at sea becomes better able to do so than a navy constructed at the same cost merely intended for the defense of certain local areas. As the first object of the plans for organization the experts therefore recommended a coast-defense fleet efficient in operation. It is pointed out that such a fleet is also the one which best meets the requirements for the defense of neutrality.

The experts then proceed to the question of the kinds and types of ships. In the first place ironclads are dealt with. It is stated that one of the basic conditions in order that a navy shall be able to retain its mobility and be enabled to operate at sea with prospect of success is that ironclads be included in the same. It does not follow, however, that our ironclads in order to be able to serve this purpose must be of the same proportions as those of the great powers. Rather is it desirable to investigate whether our present *Sverige* type—possibly somewhat developed—or a cheaper type of ship will meet the requirements. [*Sverige* is of 7,600 tons, mounting four 11-inch and eight 6-inch guns.—Ed.]

The experts consider after an interesting and instructive investigation of the present general shipbuilding policy that ironclad ships of the *Sverige* type are on the whole superior in gun power to the cruisers at present being built (likewise to a certain extent to the so-called Washington cruisers), but considerably inferior to battleships. In speed the *Sverige* ships are probably on a par with or superior to the battleships present in the Baltic Sea, but greatly inferior to the cruisers.

In case ships of the *Sverige* type are included as ironclad ships in the Swedish coast-defense fleet, a hostile power wishing to direct a decisive attack on us from the sea must cause such an attack to be supported by battleships. The assistance of Washington cruisers alone would scarcely prove sufficient. It is declared that one could probably not reckon with a smaller number of *Sverige* ships than four, and the experts believe that "the knowledge of the important forces which in case ironclad ships of the *Sverige* type are included in our Navy would be required for the execution of an attack directed against us from the sea and the knowledge of the serious risks which the most valuable ships of the assailant must thereby run should weigh heavily against the advantages which a foreign power might possibly believe itself able to gain through breaking our peace."

If, on the other hand, the kernel of our navy is composed of the cruiser type, an attack directed against us from the sea need not be supported by battleships and, in fact, cruisers of the Washington or even a still weaker type will be

adequate. The reasons which operate against instituting an attack are naturally weakened substantially in case the enemy has a prospect of being able to carry out the attack without having to risk his most valuable ships. The greater speed of the cruiser in comparison with that of the *Sverige* type is not, owing to the special geographic conditions of our coastal waters, of decisive importance.

The experts feel impelled to advise emphatically against a replacement of ships of the *Sverige* type by vessels of the cruiser type. This advice applies not only to the cruiser but also to every type of ship which is weaker than the *Sverige* type. The experts therefore consider that "ironclad ships of the *Sverige* type should continue to form a part of our navy." They maintain that the type in question should embody the following main features: Displacement about 7,600 tons; guns, four 11-inch, six 6-inch, four 3-inch anti-aircraft; torpedo equipment, none; good armor protection; speed 24 knots.

With reference to cruisers a synoptical but nevertheless thorough account is given of the great importance of this type not only as a scouting and fighting unit but also for the manifold other objects devolving upon the same in modern war. It is stated, however, that in our case the scouting objects may to a considerable extent be undertaken by our air forces; likewise, certain other objects of cruisers, by destroyers and submarines.

As, during the deliberations of the experts, the desirability of cruisers was strongly emphasized, an investigation was made with respect to the various types which might be considered. A special account is given of three types, A, B, and C, with a displacement of, respectively, 6,200, 5,400, and 3,750 tons, at a price of 23,800,000, 19,500,000, and 16,000,000 crowns.

While the experts do not underrate the great importance of the cruiser type, they consider that "for economic reasons and in order to be able in a reassuring measure to satisfy the need for the kinds of vessels which, from the point of view of the general operating efficiency of the navy, must be regarded as the most important, 'cruisers ought not be embodied in the plan for the organization of the naval forces.'"

The experts then go on to deal with the matter of destroyers. A detailed report is made as to the usefulness, etc., of these vessels, and the following statements are made regarding the most suitable type of destroyer for our navy:

"A diminution in the size possessed by our newest destroyers (of the *Nordenskjold* type) [1,000 tons—Ed.] is not possible without injuring the value of one or several of the fighting qualities which this type possesses. In view of the qualities which, at present, mark the types of destroyers generally building abroad, such a step would result in a material deterioration of the prospects of our destroyers to attain in operations of naval war, the objects which devolve upon them. As there is no room for cruisers in the plan for the organization of the naval forces it is the more important that the qualities of the destroyers are not impaired.

"The experts, for the reasons indicated above, considered it their duty in elaborating the plan for the composition of the coast-defense fleet to continue to reckon with destroyers of the *Nordenskjold* type. According to estimates made, the initial cost of this type is at present 6,940,000 crowns per ship."

In the same manner an account of the objects, etc., of submarines is given, and the experts consider that "our submarines should be of two types, which are designated in the following as type A and type B. Type A, of the same type as our first-class submarines now under construction [about 700 tons—Ed.] should, in the first place, be a torpedo submarine with speed and other

qualities which make it suited to cooperate with the main forces of the coast-defense fleet and, in case of detached duty, to assume with the necessary promptness, its assigned station. Type B should be a combined torpedo and mine-laying submarine.

"The present cost of submarines of type A is estimated at 4,[illegible] crowns and that of type B at 3,280,000 crowns."

The question of gunboats is then considered. It is declared that the ships that are designed to pursue submarines must above all be fast, seaworthy, and able in practically all weather to follow the navy even when moving at high speed. The more and more extensive employment of mines also necessitates extensive precautionary measures in the form of constant mine sweeping. The fast and shallow-draft vessels intended for this purpose must also be able to appear at the head of a fleet operating at sea. As it must be regarded as out of the question that we, as is the case in the great navies, could impose these tasks on the destroyers, the experts consider that a number of small fast ships, which it is proposed to designate as gunboats ("vedettbåtar"), should be included in the naval forces. The following proposals are made as to type: Displacement, 200 tons; speed, 27 knots; armament, etc., two 3-inch guns, two 25-millimeter automatic guns; 4 mine throwers, paravanes.

It is stated that the limited number of vessels of this kind which can be acquired by the naval forces does not satisfy the demand for submarine chasing and mine-sweeping units. An organization of auxiliary ships is therefore necessary.

With respect to motor torpedo boats the experts express the opinion that "while these vessels under favorable circumstances might prove of value to our naval defenses, the qualities of ships of this kind do not appear to be such as to make them suitable for inclusion in our coast-defense fleet. As provided by the defense resolution of 1925, a small number of such vessels ought probably to be included in the local forces as pattern ships and in order to give at least some of the personnel an opportunity to become conversant with the handling of this material."

Then follows a novelty, viz., the type which the experts designate "hangar cruisers." The aircraft forces which are apportioned to an operating naval force appear, nowadays, to be an indispensable, fully integral part of the naval forces, the experts declare. The participation of aircraft in the operations of naval war can not be restricted to sporadic contributions, but must be permanent and direct. Our navy lacks at present the ability during operations at sea to carry airplanes capable of starting from and again landing on ships. A system based upon airplanes operating from land does not meet the requirements. In the large navies the requisite cooperation between the naval forces and the aircraft forces has been insured partly through the inclusion of aircraft carriers in the navies and partly through the large ships being able to accommodate a small number of airplanes which are launched by means of a catapult. Carriers with landing decks are of considerable size and are too expensive for us.

The experts consider that the airplanes cooperating directly with the coast defense fleet—in scouting, fire-control, and pursuit—should, to as great an extent as possible, be based on carriers of a type which can follow the coast defense fleet to sea. The following type is proposed: Displacement, 4,500 tons; speed, 27 knots; armament, six 6-inch guns, four 3-inch guns, eight 40-millimeter automatic guns; two catapults; 12 airplanes; ability to carry and destroy mines. Cost, 16,[illegible],000 crowns.

It is especially emphasized that the type in question, in addition to serving as a base for airplanes, is singularly well adapted for mine laying. The carrier can, therefore, in our navy, fulfill one of the objects which otherwise devolves

upon cruisers. In view of this it has seemed justifiable to give the type of ship in question the name "hangar cruisers."

In view of the desirability of reducing expenditures the experts have considered various alternatives for the composition of the coast defense fleet. All of them included armored ships, destroyers, gunboats, submarines, and "hangar cruisers." In another alternative it was recommended that two cruisers of a developed C type (6-inch guns) be included in the plan, whereby, particularly on account of costs, the number of ironclads could be fixed at only 3 and the number of destroyers at 6. The experts emphasize, however, the reasons in favor of divisions of 4 ships and, on the urgent advice of the military members, abandon the last-named alternative.

The experts agreed instead in recommending that 4 armored ships and 8 destroyers be included in the coast-defense fleet, but, on the other hand, exclude cruisers. The "hangar cruiser" is regarded as being able in part to take over certain of the objects of cruisers, partly as to the scouting service, by facilitating the cooperation of the air forces with the coast-defense fleet, and partly as regards mine laying.

Regarding the number of destroyers, there prevailed no division of opinion, it being proposed that 8 such ships be included in the coast-defense fleet.

As to the question of the number of submarines, the experts agreed in proposing 9—3 of type A and 6 of type B. A greater number was considered as desirable but as unobtainable because of the cost.

For the same reason only one "hangar cruiser" was proposed.

The following plan for the organization of the coast-defense fleet, with an indication of the annual expenditures involved by the same, is proposed:

Kind of ship	Number	Length of life		Cost per ship	Annual appropriation
		Coast fleet	Local forces		
		Years	*Years*	*Million crowns*	*Million crowns*
Armored ships (approximately 7,500 tons)	4	24	12	27.30	4,550
Destroyers	8	20	5	6.94	2,776
Gunboats	8	16	8	1.30	650
Submarines:					
Type A	3	14	4	4.39	941
Type B	6	14	4	3.28	1,406
Hangar cruisers	1	30		16.50	550
Total annual appropriation					10,873

The experts then discuss the questions of local forces, reserve ships, auxiliary ships, etc., but other and more important questions make impossible a detailed report on this.

Chapter 5

PROGRAM OF RENEWAL CONSTRUCTION

The experts are of the opinion that renewal construction in the first place should apply to the coast-defense fleet and that no new constructions exclusively for the account of the local forces should be undertaken. An exception from this attitude is, however, made as regards the motor torpedo boats of the local forces, but it is considered that the question of replacement construction for these should not be taken up before the existing ships are to be discarded.

The program of replacement construction is therefore designed to give the coastal defense fleet the composition which this naval force in the opinion of the experts should attain.

In preparing a program of replacement building intended to be realized within a fixed period, a suitable equilibrium should be established when determining the length of this period. The length of the period should be so determined that the replacement building may be arranged according to a plan so that technical developments during the same period are not permitted to disturb the plan. The experts consider a period of 10 years to be appropriate.

In elaborating the program in question the economic basis is determined by the average annual appropriation which should be forthcoming in order that the renewal of the navy may take place continuously, whereby the efficiency of the force is maintained. The reduction in the total expenditures for the defense provided by the defense resolution of 1925 can only be achieved by degrees after the lapse of a few years. Fiscal considerations therefore call for particular restraint in the matter of expenditures for shipbuilding during the next few years. The experts therefore consider that the first part of the 10-year period should be burdened relatively less than the latter part.

The experts consider that replacement construction in the first place should be concentrated upon the ships the age and depreciation of which is most advanced. In the first place, this applies—apart from the cruisers—to destroyers and gunboats, and, in the second place, to the submarines. In view of the desirability of giving the coast-defense fleet an opportunity as soon as possible to better exploit the air forces, the experts consider that the new "hangar cruiser" should be completed during the first half of the building period.

The vessels of the *Sverige* type included in the ironclad division of the coast-defense fleet are comparatively new. The experts felt that the completion of this division could wait until the second half of the building period. Until an ironclad of the type advocated by the experts has been completed the existing ironclad *Oscar II* must, therefore, despite its age, continue to form a part of the coast-defense fleet. As drawings and preparatory construction work for an ironclad take a long time to execute, the experts consider that funds for the defrayal of the costs of carrying out this work should be appropriated during the first term of the building period. In this way it should be possible to commence the construction of the ironclad immediately at the beginning of the second term, and further delay in the completion of the ironclad division can be avoided.

The program of replacement construction ratified by the Rigsdag of 1924 provided for the construction of 2 destroyers, 2 torpedo submarines, and 2 motor torpedo boats at a total cost of 23,720,000 crowns. The Riksdags of the years 1924–1926 appropriated for the purpose a total sum of 16,200,000 crowns, so that a grant of further 7,520,000 crowns is required for the completion of the program. The program ought, of course, as seems also to have been the intention of the defense system of 1925, to be completed as soon as possible, so that these funds, in the opinion of the experts, should be forthcoming during the fiscal year 1927–28.

It would seem to be out of the question, for fiscal reasons, to burden the budget of 1927–28 beyond this with the whole or even a portion of the estimated annual expenditures for the replacement construction, which, according to the proposal of the experts, should take place during the first term of the 10 years' period.

However, there appear to exist strong reasons for the realization of the program of replacement construction proposed by the experts being begun, at least to a small extent, already during the coming fiscal year. The experts

explain these reasons in some detail—especially in connection with the desirability of continuous occupation at the navy yard—and propose that the estimates for the execution of their program of replacement construction be distributed as follows:

In the fiscal year 1927–28, for the completion of 1924's program, 7,520,000 crowns, and for a beginning on the program of the experts, 640,000 crowns; or, in all, 8,160,000 crowns. In the fiscal years 1928–1933, the costs of carrying out and completing the program of the experts with respect to the first building term, total 45,990,000 crowns, divided into one-fifth in each year or 9,198,000 crowns per annum; and in the fiscal years 1933–1938, the costs of executing the program of the experts with respect to the second building term, total 59,400,000 crowns, divided into one-fifth for each year, or 11,880,000 crowns per annum.

During the fiscal years 1928–1938 the appropriations for the replacement construction of the navy would thus total a sum of (45,990,000 plus 59,400,000) 105,390,000 crowns, or on an average of 10,539,000 crowns per fiscal year.

The experts emphasize the desirability of the replacement construction being executed to the greatest possible extent at the yard of the crown in order to make possible the maintenance of a sufficient staff of skilled workmen both for mobilization and for peace requirements. Through the carrying out of such construction work, technical skill is also maintained.

The extent of this replacement construction nevertheless causes the private shipbuilding industry and mechanical workshop industry to be furnished with work which may contribute to the maintenance of their operations and activity.

The final summary of the experts reads as follows:

"Referring to the foregoing statements, the experts urge that His Royal Majesty on the submission to the Riksdag of 1927 of the plan prepared by the experts for the organization of the naval forces as well as of the program of replacement construction elaborated by the experts, may propose to the Riksdag:

"First, that it resolve that the replacement construction of warship material, comprising the construction of 1 'hangar cruiser,' 2 destroyers, 4 gunboats, and 3 submarines, shall take place during the fiscal years 1927–1933 and that during the same period drawings and preparatory construction work for an ironclad ship be carried out.

"Second, that it grant for replacement building in the fiscal year 1927–28 a special reserve appropriation of 8,160,000 crowns."

A number of inclosures, both of a secret and of a public nature, accompany the report. In one of these annexes is indicated, among other things, the composition of the naval forces (1) at the end of the 10-year period and (2) when so long a time has elapsed that the coast-defense fleet—exclusive of depot and auxiliary ships—shall consist exclusively of the ships of the types proposed by the experts for acquisition; that is to say, after fully completed reorganization. In the main this inclosure contains the following:

I. ORGANIZATION AT THE END OF THE 10 YEARS' PERIOD (JUNE 30, 1938)

(*a*) *Coast defense fleet.*—Four *Sverige* ships, 1 hangar cruiser, 6 destroyers of new type, 2 destroyers of the *Wrangel* type; 8 gunboats of new type, 2 depot ships for submarines (old ironclad plus 1 auxiliary ship), 3 submarines of type A, 6 submarines of type B.

(*b*) *Local forces.—Oscar II Manligheten, Tapperheten, Munin, Hugin, Sigurd.* 2 motor torpedo boats, 6 gunboats (now first-class torpedo boats), 4 submarines (type *Bavern* and the submarine *Valen*), 1 depot ship for submarines (old ironclad).

(*c*) *Reserve ships, etc.*—In the main, the rest of the existing ships.

II. AFTER COMPLETED REORGANIZATION

(*a*) *Coast defense fleet.*—Four *Sverige* ships, 1 hangar cruiser, 8 destroyers, 8 gunboats, 2 depot ships for submarines (old ironclad plus 1 auxiliary ship), 3 submarines of type A, 6 submarines of type B.

(*b*) *Local forces.—Gustaf V, Drottning Victoria.* 2 destroyers, 2 motor torpedo boats, 4 gunboats, 1 submarine of type A, 2 submarines of type B, 1 depot ship for submarines (old ironclad).

(*c*) *Reserve ships, etc.—Sverige, Oscar II, Manligheten, Tapperheten,* 2 destroyers (old type), 3 gunboats (*Sokaren* type), 4 submarines now existing or now under construction, 1 ship for military hydrographic measurements, 3 receiving ships (one of which for depots), 4 training ships.

COMMENT BY NAUTICAL PERIODICAL, "VAR FLOTTA"

Detailed comment of this document must be deferred. Suffice it to say that the report proposes that our defensive system, which was reduced so substantially in 1925, at last be given the appropriations absolutely necessary for its existence—neither more nor less. The proposal does not represent any victory for one or the other of the political points of view or for any of the various points of view as to how our country should be defended, but it undeniably represents a victory for sound common sense. It has been realized that it is not possible in the long run to maintain merely a fiction of a naval defense. If we are to have even a reduced navy we must pay the price and that is the end of it. No political subtleties nor embellished circumlocutions can any longer eclipse this truth, and everlasting honor is due to the experts because they, unlike their many predecessors, without subterfuges or reservations accept the logical consequences of the situation such as it really is. The unanimity of their report is, in view of the usual procedure in dealing with questions of defense in our country, as delightful as it is unusual and was certainly not attained without certain sacrifices of personal opinions by both the military and the political experts. The reward for these sacrifices, the experts will probably find in the honor of appearing as the advocates of the first honest and powerful attempt in many long years to in some measure lift the naval defense out of its unheard-of material stagnation.

Professional opinion must, of course, recognize without reservation the correctness of the views which the experts express regarding the objects of the navy, but it will also find good cause for certain criticisms of the proposal and its details. For from a purely professional point of view criticism may in several respects be directed against the same, but the best must not be the enemy of the good, and that the proposal contains something good for the navy can not and must not be denied.

NOTE.—The above is printed here to indicate the general considerations which dictate Swedish naval policy and to illustrate the naval problems confronting small powers in general and Baltic powers in particular.—Ed.

YUGOSLAVIA

A. NAVAL

1. New vessels for Yugoslavia.

According to a report from Belgrade, the Yugoslavic Government has just ordered six torpedo boats from an English firm. The same report states that two submarines have already been ordered from this firm.

NOTE.—W. G. Armstrong-Withworth Co. (Ltd.) is the firm in question. The submarines are of 890 tons surface displacement, the hulls of which were laid down during the war. In addition to the above craft, Thornycroft is building two coastal motor boats for Yugoslavia. These naval activities on Yugoslavia's part are largely due to her fear of Italian projects in the Adriatic.—Ed.

SPECIAL ARTICLES

1. REPORTS CONCERNING H. M. S. "VALERIAN" AND H. M. S. "CALCUTTA"

There are given below extracts from the official reports of the commanding officers of the "Valerian" and "Calcutta" in regard to the foundering in the first case and damage sustained in the second during the hurricane of October last. These reports were obtained through the courtesy of the British Admiralty and the British naval attaché at Washington, with the knowledge that they would be promulgated to our service.

It will be recalled that both of these ships were attached to the British West Indies squadron. At the time of the hurricane the "Valerian" was making passage from Nassau to Bermuda and the "Calcutta" was alongside in the dockyard at Bermuda. The "Valerian" was a war-time sloop of 1,250 tons, mounting two 4-inch guns, with a maximum speed of 16.5 knots. The "Calcutta" is a war-time cruiser of the "Carlisle" class (5 ships), displacing 4,190 tons, mounting five 6-inch guns and eight 21-inch torpedo tubes, and having a designed speed of 29 knots.—Ed.

H. M. S. "VALERIAN"

Valerian left Nassau for Bermuda at 13.30 October 18, having completed the services required in the Bahamas on account of the recent hurricane there. Sufficient coal had been obtained locally to make the passage, but supplies there are very scarce and what could be spared only gave a reserve of just over 35 tons, after the passage was completed at economic speed.

During the evening of October 18 a report was received of a tropical disturbance having formed south of Cuba, but the direction was stated to be north or north-northwest. The next day further reports were received which indicated that although the storm was

not traveling at any great speed, it was definitely curving to the northeastward. Reports of a similar nature were received from time to time until Thursday, October 21, when the storm center was estimated to be about 700 miles from Bermuda and *Valerian* was about 200 miles. The weather forecasts from Washington then stated that the storm would reach Bermuda on Friday morning, October 22, and that winds would reach gale force. Speed of *Valerian* was increased to 9½ knots which is the maximum continuous speed on one boiler, and No. 2 boiler was also lighted up so as to do all that was possible to race the storm, as it was considered most undesirable that the ship should not reach harbor on account of the shortness of coal and her very light condition, which renders her difficult to handle.

Throughout Thursday the wind remained at about south by east, force 5–6. All awnings were furled, freeing ports worked, and all precautions taken to render the ship as seaworthy as possible. Just before midnight No. 2 boiler was connected up and 120 revolutions (11½ knots) ordered, but the continual racing of the propeller resulted in a hot bearing and speed had to be reduced to 105 revolutions (10 knots).

Gibb's Hill Light was sighted at its maximum distance at about 04.40 October 22, and although it was obscured for some time after that, the land was again made soon after daylight and about 08.00 Gibb's Hill Light was abeam 5 miles. Although the wind was blowing with a force 6–7, there was comparatively little sea and I anticipated no difficulty in entering the Narrows, having done so before under similar conditions. Indeed, at that time I felt fully assured of reaching harbor in safety, as there was no immediate indication of a violent storm; also there was a complete absence of swell that sometimes denotes the approach of a storm.

About half an hour later the weather became very thick and the wind was blowing up strongly from the southeast. At the same time reports were being received from merchant ships a short distance away of having encountered a hurricane of great intensity. Here was evidently no ordinary storm and was something far more intense than might have been anticipated from the Washington reports that had forecasted winds of gale force at Bermuda. The weather was now too thick to go farther toward the Narrows, and with a rising wind the ship's head was turned to southeast so as to head the sea and wind and to get as much sea room as possible, a speed of 9 knots being maintained.

At about 08.30 the wind was blowing gale force. The driving rain and flying spray obliterated everything from view. The ship was steaming 9 knots, or as fast as the engine room could manage with a propeller that was continually racing. Even with this speed the ship

had practically no steerageway and it was one long effort trying to keep the ship as near as possible head to wind, which was southeast. The ship occasionally got into the trough of the sea and was with great difficulty brought back again, but in spite of all this a mean course of southeast was maintained throughout. This question of steering was naturally made more difficult having only one propeller and the ship being very light. From this time on, until nearly noon, the wind was blowing at hurricane force (about 100 miles per hour), the barometer dropped rapidly, 29.60 to 28.50, and the rain was driven along in a continuous sheet of water. At noon the center of the storm was reached and the clearing came. The seas were now mountainous and seemed to approach the ship from all sides, but more particularly from south and east. As the ship balanced on the crest, or fell into the trough, it seemed as if she must break her back and it speaks very well of her construction that she withstood these stresses so well. So far no damage had been done to the hull or fittings.

At 12.15 the wind came out of the northwest, at first in fitful gusts and then with a fury that was indescribable. The sea was still coming from the southeast, and any question of turning at that time was not to be thought of. Further, it was considered better to keep her heading seaward as long as possible so as to keep away from the land. Under these conditions, with the ship steaming 9 knots, the wind rather on the starboard quarter, and the sea ahead, a comparatively good balance was obtained and in some ways was a little easier than in the first half of the hurricane, as there was less racing. This was maintained for about half an hour, during which time the ship's head was, roughly, south-southeast.

Just before 13.00 a series of squalls struck the ship on the port side with a fury that beggars all description. The ship was thrown on her beam ends, heeling 70° over to starboard. The helm was hard aport to keep her head to sea, but this was evidently holding her over, and on letting go the helm and putting it hard astarboard the ship righted and came slowly up to the wind, wallowing heavily in the trough of the sea as she came round. It was at this moment the mainmast and wireless were carried away. The ship was brought within about 6 points of the wind, but these tremendous squalls kept forcing her over to leeward, and it seemed only a matter of moments before the ship must go. Soon after the engines stopped and report came up that the ship was ashore, but this seems more than doubtful, as nothing was felt on the bridge and, although the ship was in a mass of blinding spray, nothing in the nature of breakers was seen. At the time the engines stopped the ship was heeled over to about 60° and then went slowly over.

There was little to be done except to order everyone up from below, let go the rafts, and try to make an S. O. S., but as the mainmast was gone it was unlikely that any message could have been sent. Within about one minute the ship was over, the funnels went under, and when the boilers burst a black wave came up and swept me away from the bridge, to which I was hanging, and carried me under. I came up part of the way and bumped my head and, after going down again a little, finally came up alongside a raft, to which I clung.

There was a lot of wreckage all around, and such men as I could see had hold of something. The raft to which I held had 28 men in all, and we were swept away in a mass of flying spray and foam. Unfortunately the bottom of the raft got kicked out and this entailed much greater effort in holding on. The experience of clinging to this raft for 21 hours, with only a problematic chance of being picked up, was indeed trying enough for the hardest. Luckily the water was warm, but the northwest wind felt bitterly cold to those parts that were exposed. Sunset came, and as it grew dark we looked for Gibb's Hill Light or some other light, as we had no idea of our position, but nothing was seen, not even the glare. The 12 hours of night, with waves breaking over us, was an experience never to be forgotten, and many gave up during that time. They got slowly exhausted and filled up with water and then slipped away. The raft also was slowly losing its buoyancy and as everyone wanted, as far as possible, to sit on the edge, it capsized about every 20 minutes, which was exhausting; we all swallowed water in the process, and the effort of climbing back again began to tell. Twelve held out until the end, when H. M. S. *Capetown* was most thankfully sighted at about 10.00 the following day. The buoyancy of the raft was then very small and in another hour, it is thought, would not have supported anyone. The men picked up were most carefully looked after by the *Capetown* and every kindness shown.

I should like to bear witness to the brave and calm way in which the ship's company bore themselves to the last and upheld in every way the finest traditions of the service. While deeply regretting the loss of the ship and so many gallant lives, I do not feel that by any act of mine it would have been in any way possible to have averted this terrible disaster, the forces of nature being, as they were, overwhelmingly powerful, nor could the loss of so many lives have been in any degree minimized. By the greatest ill luck the ship could not quite reach her goal, just one hour away, where she could have ridden out the storm with good prospects of success, and where in any event the safety of so many valuable lives would have been assured.

H. M. S. "CALCUTTA"

H. M. S. *Calcutta* was lying alongside the oiling jetty heading 050°.

At 06.00 it appeared likely that the tropical disturbance reported in the weather forecast the previous day would pass close to Bermuda.

Extra hawsers were put on and when the dockyard opened at 07.00 hurricane hawsers were drawn and placed.

A wire was run from the north arm to the starboard bow of H. M. S. *Calcutta* and another from the east arm of South Basin to the starboard quarter of H. M. S. *Calcutta*. As an additional precaution the kedge anchor was shackled to and slid down the hauling-off wire on the starboard quarter.

At 07.30 the wind was blowing strongly 8–9 from the eastward through the entrance to the basin and raising a slight sea, though the full force of this sea appeared to be rather astern of H. M. S. *Calcutta*.

At about 08.30 the wind was easterly, force 10, and continued so till 11.45.

Some anxiety was caused by the lanyard bolts of the foremost wooden fender drawing and the fender commencing to work forward, and thus allowing the ship to come in on the jetty amidships.

This was, however, remedied by lassoing the fender with a 3½-inch wire and securing it to the ship in position, excellent and plucky work being done by two dockyard riggers.

Rather more sea was running in the basin during the latter part of the forenoon, but the ship was riding very easily, hardly bumping at all.

The hawsers run out to starboard were undoubtedly in a great measure responsible for this.

During this period only one 3½-inch wire spring parted.

There was a lull from about 11.45 to 12.30. This period was occupied in putting on more hawsers, equalizing the ones already on, and generally providing for the safety of the ship. The starboard anchor was also let go underfoot.

It was fully realized that the wind would back to the northwest and probably blow harder than before.

No less than 30 hawsers (47 parts to the shore) were used, including 6 hurricane hawsers.

Great difficulty was experienced in finding places inboard to which these hawsers could be secured. Consequently it was found necessary to secure one 5½-inch wire round the port cable holder. This, as it turned out, was unfortunate, as the wire jammed on the cable holder and prevented the port anchor being let go, though it is very open to doubt whether letting go the port anchor would have been of any value.

At about 13.15, during an exceptionally heavy squall, one 3½-inch wire breast on the forecastle snapped, and almost immediately all the forecastle hawsers parted practically together, closely followed by the waist and stern hawsers. In fact, in about 1½ minutes every hawser securing the ship had parted.

If this had not actually happened it would be incredible.

I am doubtful as to the exact cause of the parting of all these hawsers, but am of the opinion that it was in some measure due to the bow hawsers being at too vertical an angle. This, however, was unavoidable owing to the bollards being very close to the jetty edge.

The heavy squall at about 13.15 listed the ship and brought a direct upward pull on the breast hawsers. It is also quite likely that the hurricane hawsers were partly perished due to the Bermuda climate.

H. M. S. *Calcutta* was rapidly driven to leeward away from the jetty, the anchor checking the bow drift slightly and allowing the stern to swing away from the wind.

The starboard engine was put to "slow ahead," "half speed ahead," and finally "full ahead," in order to keep the stern off the northeast end of the south breakwater, and the ship was driven on to the southwest corner of the north breakwater rather heavily.

At this moment, it is believed, all the damage was done.

After an effort to steam up to the oiling jetty "bows on" to take in wires had been abandoned owing to the unhandiness of the ship in the prevailing conditions the ship was again allowed to lie against the north side of the entrance, and was there secured, a number of the ship's company leaping ashore and using ship's wires and bights of the dockyard 3½-inch shifting wire which was there. Engines were also worked to keep the ship in this position.

Attempts were then made to float grass lines secured to life buoys down to H. M. S. *Calcutta* from the oiling jetty in order to get out more bow hawsers.

Difficulty was experienced in getting the life buoys away from the jetty, and Sub. Lieut. C. B. Alers-Hankey of H. M. S. *Capetown*, and, later, Lieut. S. W. Roskill of H. M. S. *Wistaria* swam to H. M. S. *Calcutta* with the life buoys and grass hawsers. Although little danger was incurred in their action I consider both these officers showed great zeal and performed very useful service, besides setting an excellent example in an emergency.

With a hawser out on either bow and the weather moderating, H. M. S. *Calcutta* rode very easily and was later hauled back to her berth.

The behavior of the ship's company of H. M. S. *Calcutta* in these rather trying circumstances was beyond all praise.

The decision to allow H. M. S. *Calcutta* to remain in her berth alongside the oiling jetty may appear to conflict with S. O. I. No. 418,

but it was my opinion that the disturbance would not pass close enough to Bermuda to cause anything but southeasterly gales. My opinion was confirmed by the weather reports received from Washington.

I considered that in her present berth, with proper precautions, the ship could safely ride out any southeasterly gale.

For the decision to allow the ship to remain where she was I accept full responsibility.

It is pointed out that as far as the southeasterly part of the hurricane was concerned I was correct, and that the fact of the ship being driven from the jetty by the northwesterly wind, secured as she was, is most astonishing and unprecedented.

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2. JAPANESE CONTROL OF WESTERN PACIFIC

The following article, written by Baron Sakamoto, was recently published in the Diplomatic Review under the title of "In War and Peace Maintain Control of the Western Pacific and Especially Guarantee the Lines of Communication with the Asiatic Continent." The author is a retired rear admiral who served on the general staff and on the Japanese delegation to The Hague and London conferences.—Ed.

Once the emergency comes, while we may be able to keep control of a part of the Pacific, we must expect our lines of communication around Taiwan and to the west coast of Chosen will be threatened by the activities of the enemy's submarines.

We must maintain a supply of 700,000 tons of rice (the annual shortage) over the home production, as well as other necessities of life and of iron and fuel to carry on the war. This must come over the Japan Sea, so we must keep our lines of supply open through Chosen to the Asiatic Continent. These lines are indeed of vital importance to the Empire—the fate of the nation depending on them. Therefore, we must, at all odds, maintain the security lines of communication to Chosen.

We must close the Tsugaru and Soya Straits and thus make the Japan Sea our own "pond." Only in this way could we carry on the war.

Suppose we have been able to keep the lines of supply open through the Japan Sea, the next question is that of transporting supplies from far inland to points on the Japan Sea and thence to Japan. This brings up the point of railroads in Manchuria and Mongolia, terminal ports, and navigation across the Japan Sea.

The abundance of resources in Manchuria and Mongolia is well known. A broad discussion of railroad development there is beyond

the scope of the present discussion, and we shall consider here merely the points that concern lines of communication between the continent and the Japan Sea.

Supplies from Manchuria and Mongolia can be transported over the South Manchuria Railroad and over railroads in Chosen to Fusan or Genzan and thence to our northern ports. This, however, is a roundabout way and it is more economical and quicker to short-cut the Chosen Peninsula and ship to Seishin or Rashin upon the completion of the Kirin-Kainei Railroad.

If we are to obtain our supplies from Kirin by the present routes, namely, via Mukden, Keijo, Fusan, thence by ships and home railroads to Osaka, it means transportation over a distance of about 2,400 miles, whereas over the Kirin-Kainei line to Seishin, and thence by ships to Tsugaru and then by rail to Osaka the distance is reduced to only 900 miles.

The Kirin-Kainei Railroad is an uncompleted line, to be 270 miles in length, when completed, and connecting Kirin in Manchuria and Keinei in Chosen. About 1909 the Japanese Government, in exchange for the recognition of Chinese sovereignty over Kanto (a district bordering on the northeastern frontier of Chosen), obtained the right to construct this railroad and a loan was made through our Industrial Bank. Under the contract the line should have been completed long ago, as the work on the first 130 miles between Kirin and Tonka is now started and it is said to be the plan when the road is completed to permit the South Manchuria Railroad Co. to operate the line, as in the case of the Kirin-Chungchun line.

As for the Japan Sea terminus, Yuki, Seishin, Rashin, and others are mentioned, but nothing definite has yet been decided. Each port has its own advantages and disadvantages, the situation being:

(1) Viewed from the suitability of the land area facing the port—Seishin first, then Yuki, then Seibanpo.

(2) Viewed from the suitability of the harbor—Rashin first, Yuki next, then Seishin.

(3) Viewed from the adequacy of water supply—Yuki first, Seishin next, then Seibanpo.

All things considered, Rashin is believed to be the most suitable for building a terminus.

The Kirin-Kainei line, by virtue of its being a short cut from Chungchun (northern terminus of the South Manchuria Railway) to the Japan Sea ports, may not be looked upon with favor by that company, and this in a measure is responsible for the slow progress on this new line. However, from the standpoint of our national defense and of economic advantages, it is earnestly hoped that the completion of this line will be shortly effected.

As a terminal port in northern Chosen, it occupies a position similar to the axis of a fan; steamship routes diverging from there to the following seaports of Japan: Otaru, Hakodate, Funakawa, Niigata, Tsugaru, Maizuru, Sakai, and Hamada. The distances from the north Chosen port to these ports average 470 miles.

When we consider the advantages thus offered in the importation of supplies from North Manchuria over the Kirin-Kainei line and through the chain of ports named above I believe that the interests of a company, such as the South Manchuria Railway Co., must be subordinated to considerations of our national defense, and to economic advantages to the nation as a whole.

There is a project now in hand for building a railroad net in Chosen, extending about 1,000 miles, costing 320,000,000 yen, to be completed in 10 years, beginning the year 1927–28. The object of this program is, of course, the development of natural resources of Chosen, yet we can not overlook the immense advantages it offers as a military asset. The lines coming under this program are as follows:

	Miles
Tomon line (Yuki to Dokan)	97
Keizan line (Joshin to Keizan)	88
Tokai line (Genzan to Hoko) (Urusan to Fusan)	341
Keizan line (Fushu to Zenshu) (Inson to Tanyo)	156
Mampo line (Junsen to Mampo)	178

With the completion of the above railroad net, the Government intends to purchase several private existing lines and convert them to broad-gauge lines. The private lines to be purchased are:

	Miles
Keinan line (Masan to Fushu)	43.5
Zennan line (Shotei to Ritan)	22.7
Keito line (Taikyu to Kakusan) (Seigaku to Urusan)	92.0
Riri to Zenshu	15.5
Kainei to Dokan-chin	36.1
Total	209.8

Of the lines being projected, the Tomon line is for the development of coal fields in the northern part of Chosen. The Kaizan line is for carrying lumber from the mountain regions of Kankyo-Hokudo and Kankyo-nando to ports on the Sea of Japan. The Tokai line is for developing coal mines in that district. These lines are to be started in the early part of the next fiscal year (1927–28) and I hope that these lines, together with the Kirin-Kaini line and its terminal port, will be completed as soon as possible, so as to better our system of national defense.

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FOR CONVENIENCE IN ROUTING

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Executive Officer			
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First Lieutenant			
Engineer Officer			
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Communication Officer			
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First Division Officer			
Second Division Officer			
Third Division Officer			
Fourth Division Officer			
Fifth Division Officer			
Sixth Division Officer			
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"V" Division Officer			
"A" Division Officer			
"B" Division Officer			
"E" Division Officer			
"M" Division Officer			
"N" Division Officer			
"R" Division Officer			
Radio Officer			

The material for the BULLETIN is largely derived from service sources and its interest and value are correspondingly dependent upon the number and character of the reports received by the Office of Naval Intelligence from our own officers. In this connection the observations of officers afloat are of great value, particularly if the reports rendered are drawn up in accordance with existing intelligence instructions.

While political and economic information is undoubtedly of much use, the collection of military information should come first in the intelligence work of cruising ships.

NOTICE

The contents of this number of the BULLETIN are based upon information received in the Office of Naval Intelligence between April 25 and May 25, inclusive.

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H. M. S. NELSON

Port Bow View

CONFIDENTIAL

O. N. I. MONTHLY INFORMATION BULLETIN

VOL. IX JUNE, 1927 No. 12

ARGENTINA

A. NAVAL

1. New naval units.

It is reported that the Argentine Government is endeavoring to place a loan with the Morgan interests in New York. It is stated that the loan is to be for $35,000,000. The latest information on the purchase of new naval units is that the contract for the cruisers will be placed in Italy and for the destroyers in England. However, the contracts have not actually been signed and the contract for the submarines will probably be delayed until after the signing of the cruiser and destroyer contracts.

The President of the Argentine is strongly in favor of giving the contract to a French company. It seems that the delay is on the question of type; and since the board of admirals recommended the Holland design, it may be that that type will be adopted eventually.

It is also reported that of the $75,000,000 gold appropriated for the purchase of naval units, $4,000,000 has been allotted to naval aviation.

This money will be used for the purchase of planes and equipment (besides ground installations) in Europe, possibly in France, and in Italy. There is a feeling among the higher authorities that none of this money should be spent in the United States.

NOTE.—Further details regarding the above Argentine program were given in the March and April Bulletins. The program consists of 4 destroyers (1,200 tons), 2 leaders (1,800 tons), 3 cruisers (either 6,400 tons or 9,800 tons), 6 submarines (920 tons), and 3 sloops. Program also provides for improvement of naval bases. Entire program to extend over 10 years. So far as is known, American interests have not even been invited to participate in the bidding.—Ed.

B. MISCELLANEOUS

1. Anti-American propaganda.

During the past month, practically every newspaper in the Argentine, either English, Spanish, or other nationality, except the Standard, has attacked without mercy the policy of the United States in Nicaragua and in Mexico. The influential papers and those which were considered more or less pro-American, as well as the "yellow"

journals, carried from one to three pages of antagonistic articles. The Buenos Aires Herald, hitherto considered pro-American, and whose circulation depends to a large extent on its sale to Americans, remains silent editorially. Quite the contrary from the pro-British Standard, which strongly supported the United States.

The result of the newspaper campaign was the formation of many meetings led by paid propagandists who were able to induce a great many students to join them. This is the method always followed in meetings of protest as students in the Latin American universities are known to be easily influenced and are always looking for excitement and diversion.

NOTE.—One of the effects of this anti-American propaganda may be seen in the preceding article.—Ed.

CHINA

A. MILITARY

1. Review of military situation.

The following article is an extract from a Chinese combat estimate, prepared by M. I. D.

Strength

	Present strength	Trained reserves	Military manpower
Troops of all classes under arms	1,200,000		1,200,000
Trained reserves			
Untrained reserves			14,000,000
Total military manpower			15,200,000

Military man power is low owing to low standards of living and poor sanitation.

ORGANIZATION—WAR DEPARTMENT

The practical administration of military affairs is supposed to be largely in the hands of the ministry of war. In practice, control is decentralized to such an extent that with the exception of a few troops in Peking, the movement and even the mission of troops is entirely in the control of provincial or local commanders.

COMBATANT AND NONCOMBATANT BRANCHES

An unusually large proportion of all troops is infantry. There is a general shortage of artillery and cavalry. Generals Feng and Chang are both known to have some good field artillery units and the latter has some large units of cavalry which have done good work in recent civil wars. There are no signal, engineer, or medical troops worthy of note, no chemical warfare service, and practically no coast defense organization. A recent tendency is to increase and improve the artillery arm, and increase the fire power of infantry by the

attachment of 3-inch and 6-inch trench mortars to some infantry units. There is noted a marked improvement in artillery fire and instances of the use of high explosive heretofore absent. General Chang is known to have at least 10 Renault whippet type tanks. There is no air service under the Central Government. A few local leaders have planes and pilots of their own. The strongest air unit is known to be at Mukden under the control of General Chang Tso-lin. He is known to have purchased 116 French planes in 1925. In the capture of Hankow, Chang used 4 regiments (120 guns), mostly 75 millimeter with a few 150 millimeter.

EQUIPMENT

There is at present an agreement between the United States and other powers to prevent their nationals shipping arms or ammunition or supplies intended solely for their manufacture into China. This embargo is not being effectively applied.

There is in all of China a total of about 1,000,000 rifles of every age and type, 2,000 machine guns, and 1,900 field guns of different models. The great variety of models of guns and rifles renders all ammunition service difficult. Accoutrements are antiquated and insufficient. Uniforms are made in China and are of poor quality. There are no reserve supplies in guns, ammunition, or equipment. Each provincial Tuchun (military governor), an independent commander, recognizing little or no authority from Peking, organizes his own arsenal, from which he attempts to secure replacements of guns, rifles, ammunition, etc. Generally speaking, the material produced in these arsenals is insufficient and of poor quality.

The troops of Gen. Chang Tso-lin are an exception to the above. They are well uniformed and there are some reserve supplies on hand.

Gen. Feng Yu-hsiang received during 1926 a large amount of munitions from the Union of Soviet Socialist Republics and the Cantonese are receiving supplies from the same source. The principal arsenals are at Mukden, Shanghai, Canton, and Hanyang, near Hankow.

EFFICIENCY AND MORALE

The Tuchun system accounts to a large extent for the following outstanding features: Decentralization of military authority and the lack in most organizations of discipline, training, and efficiency.

The authority of the Central Government has gradually broken down and the strength of the Tuchuns has grown until now their control over their Provinces and the troops therein is absolute.

Each Tuchun regards the units of the army stationed in his Province as his personal following and in the struggle for ascendancy each spends a large proportion of the provincial funds for the recruiting and equipment of larger armies.

The Chinese are very poor organizers and this racial characteristic is shown to a remarkable degree in lack of effective control of troops and a total lack of centralized staff which could or would perform proper staff functions in the emergency of war.

A few divisions of both General Feng's and General Chang's forces have proved to be efficient and have shown high morale. These troops are excellent in close order drill, gymnastics, and barrack cleanliness. The loyalty of troops to any particular commander is often doubtful and negotiations and intrigue to secure the defection of opponent's troops is the usual accompaniment of military operations.

THEORY OF COMBAT

The Chinese have little conception of fighting tactics and their lack of organization would make the application of modern theories of combat difficult. Troops rarely conduct combat exercises or solve problems involving use of troops in battle.

At times they have shown determined holding ability but in general (unless superior in numbers) would avoid closing with their opponents.

In the usual action between two Chinese forces, the casualties are few, and bribery, loot, and conspiracy are liable to play a larger part in the victory than strategy or tactics.

The Chinese troops have stamina and at times have shown great courage. China has, in the past, developed only a handful of aggressive officers.

A wide turning movement intended to strike well in rear of opponent's front line and to interrupt his communications is the favorite battle tactics. In practically every battle recently reported the wide turning movement has been used by the victor.

Deployment in depth, for either offense or defense, is not understood or used.

CONCLUSIONS

The two most important military groups at the present time are those commanded by Generals Chang Tso-lin and Chiang Kai-shek, respectively, or what are known as the Ankuochun and Nationalist (Cantonese) forces described above. The combat efficiency and equipment of the Ankuochun troops are probably superior to that of the Cantonese, but the trend of popular support among the Chinese as a whole is toward the latter. The Cantonese are more vehement in their demands to abolish the so-called unequal treaties. Antiforeign demonstrations and acts of violence are more likely to occur in the areas under their control than in other areas.

FOREIGN FORCES IN CHINA

(1) *Peking-Tientsin Area.*—Foreign troops are stationed from Peking to Shanhaikwan, both inclusive (in accordance with the protocol of 1901, which gives the powers the privilege of keeping communications open from "Peking to the sea") in the following numbers:

American (inclusive of marine legation guard)	1,384
British	1,010
French	1,464
Italian	459
Japanese	1,500
Total	5,817

TEMPORARILY AT SHANGHAI

American	[1] 1,500
British	[2] 13,000
Italian	[3] 200
Japanese	1,500
French	[4] 2,500
	[5] 18,700

[1] An additional 1,500 due on May 2, 1927.
[2] An additional 5,500 en route.
[3] An additional 800 en route.
[4] Additional troops en route.
[5] Additional forces numbering about 4,000 could be landed in an emergency from the foreign war vessels now at Shanghai.

FACTORS THAT MIGHT NECESSITATE ARMED INTERVENTION

1. With the antiforeign sentiment resulting from the rapidly increasing nationalistic sentiment in China:

It might eventually be necessary to withdraw our nationals from outlying stations to treaty ports where protection can be given.

It is probable that responsible Chinese officials, controlling the treaty port areas, will use their authority to prevent any direct or deliberate attack on foreigners but the danger in the treaty ports lies in Chinese troops or armed or unarmed mobs temporarily out of control. In the latter case naval forces may need to be landed and these landing forces possibly reinforced to protect our nationals in the treaty ports.

It can not be assumed that even responsible Chinese officials will always restrain their followers from attacking foreigners in certain emergencies. For this improbable but by no means impossible contingency our Asiatic fleet and our troops in Tientsin are immediately available to protect Americans and their interests. These forces would ordinarily be sufficient.

2. Chinese officials will vehemently demand abrogation of treaty restrictions concerning extraterritoriality, tariff control, customs collection and control, and foreign concessions. It is possible that all of these questions can and will be amicably adjusted through diplomatic channels, insofar as America is concerned, and that the use of American forces to maintain our present treaty status with respect to these factors is scarcely probable. It is believed, however, that other foreign powers, particularly Great Britain and Japan, will use military measures if necessary, to protect the inviolability of their concessions, in which even the United States may become involved. The United States has no territorial concessions in China, but is availing itself of concessions granted to other foreign powers.

3. To carry out our obligations under the Protocol of 1901, viz, to assist in maintaining open the communications from Peking to the sea.

It is not at all improbable that warring Chinese factions may again include the area between Peking and Shanhaikwan in the theatre of their operations. In this event our troops may need to be employed with those of the other powers now present in this area to carry out the provisions of the Protocol. A concerted action on the part of the Chinese against these forces would require their immediate and considerable reinforcement.

Japan by using the Japanese troops now on the Asiatic mainland (approximately 30,000) can control the situation in the Manchurian provinces when the need for such use develops. Reinforcements from Japan proper can rapidly be made available when necessary.

Soviet troops from Irkutsk to Vladivostok number about 33,000. They are well equipped in comparison to Chinese troops. These forces, though not stationed in the zone of the Chinese Eastern Railway, might be used to protect soviet interests there.

Against foreign troops the Chinese would assume the strategical defensive and probably the tactical defensive. Their usual offensive battle tactics is the wide turning movement.

Granted sufficient incentive with able leadership, proper equipment, and efficient staff, an effective Chinese force could be developed. The success of the Southern (Kuomintang) is probably largely due to the technical assistance by Russian staff officers, clever use of propaganda and liberal use of money.

A prohibition of the shipment of military supplies from abroad into China if effectively applied and participated in by Soviet Russia as well as the other foreign powers would seriously restrict Chinese military activites and would

make prolonged operations impossible. The present Arms Embargo Agreement has been and continues to be frequently violated and is not securing the results for which it was originally effected.

The following are the important areas in China: Peking-Tientsin, Shanghai, Hankow, and Canton. Prolonged military operations on the part of Chinese factions would be impossible with these areas in the control of foreign powers, as the Chinese would be deprived of their major source of supplies and funds. A blockade of China's ports would also operate to deprive the Chinese of supplies essential to prolonged warfare.

Due to the nature of the terrain and the almost complete lack of roads, military operations on the part of foreign troops would ordinarily be restricted to the areas in the immediate vicinity of the existing railways. Local cart, pack, or coolie transportation would necessarily be used in place of our usual equipment for transportation outside the immediate vicinity of the treaty ports.

NOTE.—Attention is invited to the article in the April Bulletin entitled "Some Strategic Conceptions Concerning China."– Ed.

DENMARK

A. NAVAL

1. New submarine repair ship.

It has now been definitely decided to build a new repair ship for submarines, the principal characteristics of which are as follows:

The ship, which is being constructed in close conformity with the regulations of the German Lloyd, will have bow reinforcements as a protection against ice, will be equipped as a repair ship, charging station, and storage ship for reserve parts of submarines.

In addition, it will be equipped with the following:

An underwater-signalling apparatus. Transmitter and receiver will be installed in the wireless room.

The receiver will be fitted with a sound detector, and there will be a set of diaphragms on each side of the ship.

Two mine tracks for laying mines—one starboard and one port.

Paravane gear and mine-sweeping equipment.

PRINCIPAL DIMENSIONS, ETC.

Length between perpendiculars, 154.2 feet.
Length over all, 160.7 feet.
Draft, forward, and aft, 7.9 feet.
Displacement fully equipped, about 493 tons.
Total stock of fuel oil, 40 tons.
Speed about 13 knots.
Horsepower at 13 knots about 900 brake horsepower.

CARRYING CAPACITY

Fuel oil, 40 tons.
Lubricating oil, 3 tons.
Fresh water, 9 tons.
Extra parts for air flasks, war-cargo room, 20 tons.
Stores, 3 tons.
Crew, 38 men.

Propelling machinery: Two Burmeister and Wain submarine Diesel motors of 450 brake horsepower similar to the submarines *Daphne* and *Dryaden*.

Auxiliary machinery, etc.: Four motor dynamos, each consisting of one Fordson tractor motor (24 brake horsepower at 100 revolutions per minute) coupled direct to a dynamo (115 amperes by 112 volts).

The motors are designed for petroleum operation and gasoline starting.

One of the motors is designed for the operation of an auxiliary compressor for pumping up starting air for the Diesel motors.

The charging dynamos, whose shafts are coupled to the shafts of the Diesel motors, have an efficiency of 1,000 amperes by 154 volts in 3 hours at 350 revolutions per minute; 500 amperes by 154 volts in 1 hours at 350 revolutions per minute; 250 amperes by 178 volts in 3 hours at 350 revolutions per minute.

The dynamo shafts may furthermore be coupled to compressors for the use of the mine service.

The storage battery consists of 60 cells. Capacity, 24 amperes for 10 hours.

Two 35.4 inch searchlights will be installed, one in the radio house and one in the chart house.

The bilge and hose system consists of one electro-motor driven auto-suction two-stage centrifugal pump (capacity 105 gallons per minute against a 175-foot water column, and up to 185 gallons per minute against a 50-foot water column). The pump can suck from all holds, ammunition magazine, sea and ballast tanks.

For heating the ship there is an oil-fuel Cochran boiler with a heating surface of 204.7 cubic feet, and a working pressure of 45 pounds.

Magazines—There are two ammunition magazines under the between-deck, one forward and one aft. The mine magazine is on the middle deck forward.

Decks.—The middle deck is water-tight above the ammunition magazines, drinking-water tank, and ballast tanks, and is oil-tight above the oil tanks. It is planked with wood and is covered with "lito silo" above the water and oil tanks. The main deck, forecastle head, and bridge are planked with wood. The chart and radio houses are of steel; the pilot house of wood.

Bulkheads.—There are five water-tight athwartship main bulkheads extending up to the main deck, and under the middle deck there are in addition seven water and oil-tight diagonal bulkheads. There are no water-tight doors.

Sundry.—A 59-foot bilge keel will be mounted on each side of the bottom of the ship.

The rudder is a Flettner rudder which is operated by hand power from the pilot house and bridge.

Reserve hand steering gear will be erected aft for operating the rudder as a fixed rudder.

On both bridges there are machine telegraphs and speaking tubes to the engine room. In addition, there are speaking tubes between the pilot house and the engine room and between the bridge and steering wheel aft.

NOTE.—Last year Denmark completed two submarines of 325 tons. Like all of the Baltic States, she is directing her efforts to the construction of small craft.—Ed.

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2. *Admission of foreign warships into Danish waters.*

Regulations concerning the admittance in time of peace of vessels of war belonging to foreign powers into Danish ports and territorial waters are promulgated as follows:

Article 1

Warships of foreign powers are permitted without any previous notice to anchor in Danish waters with the exception of inland waters, the Copenhagen roadstead and the closed waters. (See arts, 3, 4, and 5.)

Article 2

War vessels of the foreign powers with the exception mentioned in this article are allowed to lie at anchor for short stays without previous notice in the Danish ports that are directly on the path of traffic through Kattegat, Sund, Great and Little Belt, and also in the ports in the island of Bornholm.

For a stay of more than 48 hours and also for a visit of a fleet to Fredericia, Nyborg, Korsor, or Elseneur, previous notice through the diplomatic channels must be given. (See, however, art. 6.)

Article 3

Warships of foreign powers are allowed to lie at anchor or sail in the inland waters of Denmark or to moor in Danish ports other than those mentioned in article 2, first paragraph, provided previous notice be given through diplomatic channels. (See, however, arts. 4, 5, and 6.)

The inland waters of Denmark include besides the harbors, ports, entrances, roadsteads, bays, and the Danish waters lying between and beyond islands and reefs which are not constantly under water.

The following are particularly deemed to be inland waters:

1. The fjords on the east coast of Jutland.

2. The pass between the mainland of the southern Jutland and the islands of Brandso, Baago, and Aaro.

3. The bays between the mainland of southern Jutland and a line: Halk Hoved—the eastern points of Barso—Tantoft Nakke.

4. The part of the bay of Sonderborg bounded toward the south by a line running from the point of Lille Borrishoved to the beacon "Helts Banke," thence to the site of the beacon "Middelgrund S," and from that last site to the point near Sonderby on the Kegenaes.

5. That part of the waters lying south of Egernsund, bounded southward by a line running from the forelight of Rinkenaes to the beacon of "Egernsund Anduvningsvager" and thence to the forelight of Skodsbol.

6. The fjords of the western coast of Jutland.

7. The fjord of Odense.

8. The waters west and north of the Hasenore-Samso-Endelave-Bjornsknude line.

9. The waters east of the island of Seiro.

10. That part of the waters of the Danish Kattegat, Sund, Great and Little Belt which makes the natural path for traffic between the Northern Sea and the Baltic Sea is not included in the inland waters. (See, however, art. 2.)

For passage to the west and north of Samsoe, and also for the admittance of schoolships and fishery inspection vessels into the sunds, fjords, and ports of the islands of Féroë, it will be sufficient until the Minister of Marine decides otherwise to give an annual notice.

Article 4

War vessels of the foreign powers are allowed to navigate or anchor in the port and roadstead of Copenhagen after receiving permission. Previous notice through diplomatic channels is sufficient for the mere purpose of going through the "Hollaenderdybet" and "Drogden" passes. (See, however, art. 6.)

The roadstead of Copenhagen is bounded northward by a line running from the port of "Taarbaek" to the line buoy "Taarbaek Rev" and thence to the line buoy "Saltholm Nord-Est" eastward; by a line running from the said buoy to the northernmost point of the island of Saltholm, and thence along the western shore of Saltholm to the southernmost point of that island southward; by a line running from the last-named port to the place where the lightship *Drogdens Fyrskib* lies, thence to the place where the "Aflandshage" (a red beacon with two abacuses) and from that last point to the coast of Séeland in the direction of the said beacon looking to the spire of Vallensbaek in the island of Séeland.

Article 5

The hereinbelow named Danish inland waters are deemed to be closed to the warships of foreign powers and permission to navigate therein will only be given to the vessels mentioned in article 6.

The sunds and fjords of the Féroë Islands.

The Isefjord and its entrance.

The Limfjord and its entrances.

The waters named Smaalandsfarvandet with the following entrances: Agersosund; Omosund; the pass between the Omo and the Lolland; Guldborgsund; Gronsund; Bogestrommen.

The Alssund.

The Alsfjord.

The waters south of the Fionic, with the following entrances: The pass between Langeland and the Fionic Island; the pass between the Langeland and the island of Aero; the pass between the island of Aero and the island of Lyo; the pass between the island of Lyo and the Fionia.

ARTICLE 6

The restrictions in article 2, second paragraph, 3 and 4 do not apply:

(*a*) To vessels on board of which the heads of States or their official representatives or members of a reigning family happen to be, nor to the vessels escorting those vessels.

(*b*) To vessels in distress.

(*c*) To vessels exercising supervision of fisheries with respect to the harbors and roadsteads of the western coast of the Jutland and the ports of Skagen and Frederikshavn.

ARTICLE 7

Foreign submarines can not stay under water in territorial waters of Denmark.

FRANCE

A. NAVAL

1. Launching of light cruiser "Suffren."

The new 10,000-ton light cruiser *Suffren*, which was laid down last year, was launched at Brest, May 3, 1927, in the presence of M. Georges Leygues, Minister of Marine.

The *Suffren* will differ in some particulars from the *Duquesne* and the *Tourville*, the first two 10,000-ton cruisers built under the Washington agreements, which are now being completed at Brest and Lorient. Her length is 605 feet (624 over all). In addition to the eight 8-inch guns, common to the class, she will have seven 2-pounders and will be fitted with two catapults for launching aircraft, as against one in each of the other two vessels. Her engine power is to be 130,000 shaft horsepower and her radius of action will be 5,000 miles at a speed of 15 knots. Her maximum speed will be rather less than the estimated speed of 33 knots in the case of the *Duquesne* and *Tourville*. She carries thin protective armor over engine spaces and has only three screws as against four in the other vessels.

NOTE.—See the May "Bulletin" for a further description of this class of vessel. The 1927 program calls for another 10,000-ton cruiser. In addition to these, France completed only recently three light cruisers of 7,900 tons.—Ed.

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2. Communist propaganda in French Navy.

The Minister of Interior is taking very stringent measures to combat communist propaganda in France.

In connection with a recent investigation by the secret police the fact was established that Bolshevik groups have been set up all throughout the French Army and Navy.

The Federation de la Marins (communist section charged with navy propaganda) was founded January, 1927, at the communist headquarters, 241 Rue Lafayette, Paris, under the presidency of Député Marty (former ringleader of the Black Sea revolt). At the opening session of this federation there were present 17 sailors, delegated by the various groups on board ship, some of which were actually on duty at the Ministry of Marine.

At this meeting there were registered, as representing the "Soviet Navy" delegates from the following ships and stations:

Battleships:
- Condorcet.
- Voltaire.
- Paris.
- Courbet.
- Jean-Bart.
- Provence.

Destroyers:
- Jaguar.
- Leopard.
- Tempete.
- Senegalais.
- Algerien.
- Simoun.
- Hova.

Cruisers:
- Diderot.
- Edgar Quinet.
- Primauguet.
- Mulhouse.
- Metz.
- Strassbourg.

Shore stations:
- Bizerte.
- Cherbourg.
- Brest.
- Lorient.
- Toulon.
- Rochefort.
- Various aviation centers.

The delegates representing the cruiser *Primauguet* were recently active in provoking a mild form of "revolt" on board that ship.

On April 3 the communist organization held a public manifestation at Paris, at which there was present 14 sailors in uniform and 10 in civilian clothes.

Men with communist principles get into the navy from the industrial centers (generally men of artificer ratings). The army and navy are not adopting "surveillance" over all recruits reporting for military service so that some means may be adopted of separating the "black sheep," or at least putting them where they can do the least damage.

NOTE.—The personnel situation in the French Navy is a very serious one, both from the standpoint of recruiting and seditious activities. Numerous foreign cruises are being undertaken in an endeavor to improve the morale. Further articles on this situation were given in the March "Bulletin."—Ed.

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B. AERONAUTICAL

1. Levasseur trans-Atlantic seaplane used by Nungesser.

Three-ply construction is used on lower part of hull of plane.

The bottom is of 0.3-inch thickness.

This tapers off to about 0.1-inch in the upper part.

The engine bed is all closed in, and is a watertight case, so that in case of a forced landing there will be no leaks.

Flight radius: 4,700 miles.

Motor: Lorraine-Dietrich, 450 horsepower at 1,800 revolutions per minute; 525 horsepower at 2,000 revolutions per minute.

Fitted with a Farman reduction gear, ratio 2,000 to 1,300.

Weight: Plane fully loaded, 11,020 pounds, comprising 1,060 gallons of gasoline and two persons.

Maximum speed: Full load 118–124 miles per hour.

Cruising speed: full load 108 miles per hour.

Fuel tanks: Three in number constructed of duralumin. Contain 1,060 gallons in all. Contain partitions inside in order to balance the gasoline. Weight 205 pounds.

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2. Mount Valerien beacon.

Situated on the high hill of Mount Valerien in the Paris suburb of Suresnes, immediately behind and adjoining the American Military cemetery, the Mount Valerien Beacon Light occupies a most commanding position. On one side lies the city of Paris, on the other side the Department of the Seine. The windings of the River Seine can be seen for miles in the distance.

This beacon light, which has been under construction for several years past, is now completed and in operation. This light is calculated to have a radius of 250 miles and to be seen at altitudes varying from 3,000 to 13,000 feet. On a clear night this light can be "picked up" from London.

The summit of Mount Valerien consists of a plateau, comprising a broad open level space, which is used as a parade and playground. It is surrounded by large buildings, utilized as barracks, in which a battalion of 600 French soldiers are quartered.

On the roof of one of these buildings, is a specially constructed small house, the roof of which is a platform where two searchlights, which comprise the beacon light, are mounted. In the small house, itself, the switchboard, starting resistance, motor used in turning the platform of the searchlights, and other electrical apparatus are installed.

The beacon light consists of two searchlights. Each of these searchlights is movable and are mounted on a main platform that

turns on a central axis. This main platform is moved by an electric motor installed in the basement of the small house.

The two searchlights can be mounted to give out their rays in opposite directions (180°) or at right angles to each other (90°), or at any other angle desired.

The main platform, on which they are both mounted, can be turned at 6, 8, or 10 revolutions per minute.

The searchlights, which are of similar construction, consist of:

(1) A metallic reflector (mirror) with a parabolic (concave) surface. This reflector is 6 feet in diameter and measures 45 inches from its edge to its center, this focal distance focussing the rays of light projected. This reflector is mounted in a bronze frame and swung on hinges. It forms the rear part of a large cylindrical compartment which contains the searchlight.

(2) An electric carbon arc lamp, with an automatic regulation, and capable of absorbing a maximum current of 220 to 300 amperes at a voltage of 120 volts.

(3) A glass door comprises the front part of the cylindrical compartment containing the searchlight.

(4) A second and smaller reflector is also mounted inside the searchlight which will be used to furnish a second series of rays visible to an aviator when he is approaching the searchlight, and is out of focus of the larger series of rays given out by the light.

The electric current is furnished by a separate generating set, independent of the city system.

This generating set consists of a 120-volt, 700-ampere direct current, shunt wound generator, operated by a 100-horsepower semi-Diesel motor. This generating set is installed in a small house near-by.

The carbons used in the arc lamps are of a 1.2-inch diameter for the positive carbon and of a slightly less for that of the negative. They are about 3 feet in length and calculated to burn for four hours.

The temperature of the compartment containing the searchlight, the bringing together and separation of the positive and negative carbons to a predetermined proper distance, and maintaining them in this position, is done by a small electric motor. This motor is installed inside the compartment. This compartment operates as follows:

When the temperature rises to too high a degree the relay "picks up" and closes the electric circuit to the small motor. The motor then operates to move the carbons to their proper position. When the temperature is thus reduced to the degree desired, the relay drops out and the motor stops functioning. An even temperature is thus maintained inside the compartment and the carbons kept at their proper distance apart.

MISCELLANEOUS

1. Strategic and political notes.

[Source: M. I. D.]

France has been compelled to defend herself so many times in the past against either England, Germany, or Italy as to dread an attack from any of them. Fear is still the dominant energizing influence. Her past experience has forced her to be strong at least on land in order to preserve her national life. Her military strength is therefore seen to be organized and equipped particularly for defense.

But she feels that her army at least must be kept at a high level of morale and of training, and her equipment kept modernized.

Her methods of concentrating her land forces quickly, their mobility and power, her system of supply and command make her army probably the most powerful, best equipped, and most highly developed of any in Europe to-day.

France is admirably organized to meet the early strain of a continental war. It can bring promptly and smoothly into action the combined resources of the nation.

France is weaker in native man power than her most probable enemy, Germany, but she possesses large reserves of good fighting material in Africa. Unfortunately these must be brought to the theater of a continental war by water, thus introducing a hazard so long as her navy is weak.

France is a country of high industrial possibilities but poor in raw materials; some of these most essential to modern war must be brought to her at great expense from across the seas, requiring naval protection.

In a long war, a sea blockade would be very weakening owing to her lack of many essential raw materials. She is fairly self-sustaining in food supplies and in iron and coal, and so if attacked will rely mainly on her land forces of which her well-developed aviation will be a prominent means of defense.

Her sea defense by submarines and her excellent air equipment would make her a formidable enemy in any continental war.

In a war with England her first reliance would undoubtedly be on her air force supported by submarine action against England's naval power. With Italy an attack by land would probably be undertaken with a vigorous submarine campaign against Italy's naval forces. Against Germany an invasion by troops covered by air attacks would likely be the most probable step.

Bearing of Internal Political Situation on International Relations

There are at present only two outstanding national questions having a bearing upon international relations. One is the question of international debts and the other that of security from attack. All political parties and all Frenchmen are interested in these questions, and they are the subject of discussion among individuals and in the press; however, neither of them constitutes a political issue; above all, neither constitutes a partisan issue. It can not be said that there are political parties or groups in France which favor paying the debts or canceling them, and others which oppose these solutions. Similarly, with regard to security, outside of the very small group of communists, all parties insist that whatever the Government does with respect to Germany, whether singly or in conjunction with France's former allies, the question of insuring the country against an armed attack from her eastern neighbors should never be lost sight of. This sentiment has nothing to do with politics, partisan or otherwise; it is a racial instinct, and no argument on the subject, however seemingly well founded, has any effect upon the average Frenchman. The Locarno treaties for the moment have calmed the fears which have assailed all Frenchmen ever since the rejection by the United States and Great Britain of the treaty guaranteeing France against attack from Germany. It is true that there are some Frenchmen who are still far from convinced that the Locarno pacts insure their country from German menace; nevertheless, the cries of alarm heard on every hand two years ago seem now to be lessened, perhaps through the prevailing fear in regard to national finances.

Because of her embarrassing financial situation, France's foreign creditors have been slow in pressing for a final settlement of the interallied debts. The French Government itself has been dilatory regarding a settlement hoping that delay might bring about a more favorable attitude on the part of the creditors toward whole or partial cancellation. France has considered that her sacrifices in men during the war offset the sacrifices of other nations in money.

In other words, she considered British and American loans as subsidies, that is, contributions to a common cause by nations in duty bound to contribute whatever they had available, and that cancellation would be only an act of justice. Although the Governments of Great Britain and the United States do not favor this cancellation, it is recognized that any settlement must include a long moratorium and a considerable reduction.

One other internal question bearing indirectly upon foreign relations is the length of military service and the size of the army resulting from the term of service decided upon. On this matter there is a division somewhat along party lines. The conservative groups in principle favor a longer term of service and a larger army: the radical groups demand a reduction, decrying a larger army and so-called militarism. It is to be noted that since the armistice the term has been reduced from three to one and one-half years, and according to a recent decision of the Chamber of Deputies, will undoubtedly soon be reduced to one year. This action is a result of the increased sense of security which the Locarno agreements have produced on the official mind. To say that popular sentiment shares this official serenity would not be exact, but that sentiment does favor a reduction in the term of service since this would be a boon to every family.

Foreign Policies and Relations

a. General Aims

France's foreign policy since the treaty of Versailles was signed has been dominated by her own conflicting interests. It was necessary that Germany should pay reparations or France would go bankrupt: in order to pay much, Germany had to become prosperous: if she became prosperous she would become powerful, and the moment she was powerful she would again attack France. To protect herself from this contingency, France proceeded to strengthen Poland and the Little Entente, loaned them money which she could ill spare, and made political and military conventions with these countries. This policy of alliances conduced to the estrangement of Great Britain, convinced as she already was that a prostrate Germany was a disaster for British trade. At the same time Great Britain objected to making a military convention for the defense of France against Germany, and refused to aid France in forceful measures intended to make Germany pay. France felt the need of Great Britain's support, and to obtain or keep it she has shown a willingness to concede much along every line except in the matter of her security from German attack. Thus France's foreign policy was at every step dominated by anxiety over the war which every Frenchman believed Germany was preparing, and by the desire to propitiate or enlist the support of other nations which are in a position to help when the critical moment arrives.

This was the situation up to the signing of the Locarno agreements and Germany's entry into the League of Nations. These events have brought France and Great Britain closer together, and if they

have not diminished the old prevalent fear and suspicion of Germany, they have at least given rise to the belief—slowly augmenting—that Germany is now less free to prepare her revenge than she was and that in case she decided upon war France would not be left alone to meet the attack.

b. RELATIONS TO OTHER POWERS: ALLIANCES: TREATIES

The signing of the Locarno pacts in October, 1925, and Germany's entry into the League of Nations have placed French foreign relations in a more statisfactory state than they have been since the Armistice. There is first the Rhineland treaty, basically between France, Belgium, and Germany and guaranteed by England and Italy; second, the technical arbitration treaty between Germany and France; third, a similar treaty between Germany and Belgium; fourth, an arbitration treaty between Germany and Poland; and fifth, an arbitration treaty between Germany and Czechoslovakia. There is also an agreement of mutual guarantee between France and Poland and a similar guarantee between France and Czechoslovakia. These arrangements have resulted in a calming down of anger and fear toward Germany and the establishment of more comfortable relations.

Following the signing of these treaties Mr. Briand, the Foreign Minister, declared that the Rhenish Pact was a voluntary recognition of the Treaty of Versailles, since Germany now freely recognized the territorial status quo and proclaimed the inviolability of the Franco-German-Belgian frontiers determined in June, 1919. Furthermore, Germany and France were now reciprocally pledged not to resort to war until arbitration had been fully tried and failed. This points toward peace at last, with French security assured better than it had ever been before.

Franco-British friendship has been at various times severely tested since the war due to the opposing interests of the two countries. Great Britain has not favored such indemnities from Germany as would lead to crippling a good customer: she has feared to see France take Germany's place as a martyr on the Continent, and she has felt that it was unsafe and unwise to guarantee the frontiers of Poland and other European states. She was willing to guarantee only to France and Belgium the frontiers established by the treaty of Versailles. France felt she could not accept the limited guarantee offered by Great Britain, and stoutly held out for reparations payment in full from Germany. The Dawes plan and the Locarno treaties have now adjusted these disagreements and French quarrels with Great Britain seem to be over.

French relations with Italy have had little sequence and they are now recovering from the irritating incidents of October, 1926, at

Nice. The arrest of Italian conspirators who were preparing, on French soil, an insurrection in Spain was added to the ever present dissension over the rights of Italy and of her citizens in Tunisia, and many hard words were exchanged by the press of the two countries. There were very frank talks between the representatives of the two governments resulting in a cessation of the bickering, both realizing that no possible good could come of it and some unfortunate incident might precipitate a quarrel leading to really grave consequences. The permanent threat hanging over France's relations with Italy lies in the latter's emigration problem. She regards Tunisia as having been seized by France when by all the laws of geography and of population it should have fallen to Italy. Most of the colonists are Italians and the country offers the most favorable outlet for Italian emigrants. Mr. Mussolini's imperialistic attitude and the apparent need he has of constantly proclaiming Italy's rights and her power to enforce them, provide easy matter for conflagration. Outside of this aspect and the old jealousy of Italy for her "rich Latin sister" there is little cause for worry over their relations.

Russia's political relations with France have become about what they are with Great Britain or indeed with the United States, except the fact of formal recognition. Sporadic efforts are made to create a current of trade between the two countries but nothing ever comes of it. The conference for the settlement of the Russian debts to France has died of anaemia and now that the Socialists are unrepresented in the French Cabinet there is no influence which seeks to play the Soviets' game with the French Government. It is likely that the Socialists themselves are glad of the excuse to cease bothering about the Bolsheviks as neither financial nor political profit had resulted from their efforts.

France and Spain finally came together and successfully eliminated the Riff problem. The congenital indifference of all Spaniards to what goes on outside of Spain, combined with their happy self-satisfaction, makes of Spain an easy enough neighbor to get along with when no source of national irritation and humiliation, such as the Moroccan difficulty, exists to make people sensitive. The King's well known sympathy for France and the great influence of his most skillful ambassador in Paris makes it easy sailing at the present time for Franco-Spanish relations.

Belgium and France are very closely allied, and in case of war or threat of war with Germany the two countries and their armed forces may be taken as constituting one, and that from the very start. In all the discussions regarding security, the danger arising from German intentions, and the matter of forcing Germany to pay the agreed-upon indemnity, the two countries have acted in close accord.

Where divergences of opinion existed they were ironed out beforehand and a united front usually presented to Germany.

Turkey and France have less cause of friction than a year or so ago. The French Government is now more capably represented in Syria and the former incidents so frequent on the border have ceased for the present. The recent arrest and long detention of a French steamship commander in Constantinople under circumstances which would seem to us outrageous was handled with great restraint by the French Government and this spirit of tolerance seems the prevailing one at the foreign office under Mr. Briand.

The only point of divergence existing between France and the United States is the war debt owed by France. Through her unrelenting attitude regarding payment of the debt, the United States has become unpopular, though it can not be said that the cordial relations between the two countries are really affected by this sentiment. The United States has no desire to assume the rôle of a harsh creditor, but its position is that France must realize that the interests of the American taxpayer can not be neglected and that this matter must not be relegated to the realm of dormant academic questions. Since September, 1926, press sentiment in France has been more favorable toward ratification of the Mellon-Beranger agreement; before that time the press was a unit in urging rejection as being unfair and impossible of execution.

C. GENERAL INTERNATIONAL SITUATION

The present minister of foreign affairs, Mr. Briand, and his chief assistant, Mr. Berthelot, are men of the highest technical ability, experience, and knowledge in their department, and to their skill is due in large measure the present tranquil state of France's foreign relations. Mr. Briand is credited with being an outstanding influence in bringing to a successful conclusion the Locarno treaties, which give France that assurance of security for which she has been striving ever since the war. These treaties have produced throughout Europe a more friendly spirit between nations than has been experienced for many a year.

France's stand on disarmament is not one of obstruction, but she does demand a positive guaranty that other nations' men and munitions will, in time of need, replace any reduction made in her own, and she has no intention of signing any agreements which do not bring her this assurance in positive and practical fashion. The French insist they are willing to submit to a full examination of their military power and the uses to which they are likely to put it, but they want the same examination made of other countries' military resources, and in these, they say, should enter every warlike

asset. They want this examination made not once for all but frequently and the results published. France makes claim to no more virtue in her attitude than other people; she does not make claim to more logical reasoning regarding it than some nations display. Official people in France have little hope of arriving at an early agreement, chiefly because of the present British attitude, which is that the British Fleet is the protection of liberty and civilization throughout the world, and as such can not be considered in the same category as the French Army; moreover, the former is preeminently a force maintained for defense, the latter one whose rôle is offense. The French think that it is going to take a long time before this attitude can be so altered as to enable a general reduction of armaments to be undertaken.

France's territorial aspirations have been the same for well nigh a thousand years. They have been frequently interrupted but whether as a national instinct or a deliberately pursued political plan they have never changed. France has always sought to attain what her best statesmen have defined, and her people gradually accepted, as being the country's natural frontiers. These may be defined as the Pyrenees, the Mediterranean to the Alps, the Alps to the Jura, the Jura to the Rhine, the Rhine to the sea, and the coast from there back to the Pyrenees at San Sebastian. Most of the wars fought for a thousand years have been to attain or defend these frontiers.

The effort made during the peace negotiations in 1919 to establish the eastern frontier along the lower Rhine was not so much a manifestation of the age-long push in that direction or even the desire to acquire more territory, as it was an endeavor to insure security from any future German invasion. It may be said therefore that France has reached the limits of her aspirations in the matter of her European frontiers. She has no designs upon Belgium or Holland and it would require another great upheaval before the question of attaching the German Rhine Provinces to France could ever again be considered.

The territory in and outside of Europe acquired by France, absolutely or by mandate, is all that she can absorb or govern. Her holdings in Africa and Asia are immense and some of them constitute a weakness rather than any additional strength. She has more territory than she can usefully administer and in some cases only national pride impels her to retain regions which are a burden rather than an asset. This attitude is natural, and politically wise, since France's colonial empire rests to a considerable extent upon her prestige as a great nation and to give up any part of it would be to weaken the whole. The war in Morocco was a patent example of this condition of affairs. France had no real use for the few hundred square miles for which she fought Abd-el-Krim, but he had to be beaten at what-

ever cost if her hold upon North Africa was to be maintained. The war in the Riff—as that in Syria—was not waged for the territory involved but for the colonial empire as a whole.

NOTE.—Attention is further invited to the Special Article section of this number. The above is considered an excellent review of the position of France. The recent break of Great Britain with Russia has had the effect in France of strengthening the Government's hand in its general coolness toward the Soviets. The recent speech of Mussolini before the Italian chamber in which he asked for an army of 5,000,000 men by 1936, has aroused French fears again. France's recent war time mobilization law and her announced plan of construction of a vast system of frontier fortifications are the counterparts of this. On May 15, the President of France, accompanied by his foreign minister, Briand, paid a state visit to England. During this visit, it is reported that Briand and Chamberlin reached an agreement concerning their mutually outstanding European problems.—Ed.

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2. Disarmament proposal.

Resolution presented to the French Chambre des Députés, by M. Jean Le Cour Grandmaison, member of the Naval Committee, inviting the French Government to submit to all nations a proposal on Naval Disarmament.

INTRODUCTION

It is certainly not necessary to insist on the importance of the problem of disarmament. It has always forced itself upon the attention of statesmen, philosophers, and jurists, and it would be easy to recall the church's repeated attempts to solve it, at least partially. But, since the introduction of permanent armies, which has practically coincided with a prodigious development in the means and engines of destruction, the solution of this problem has daily become more urgent.

The simultaneous growth of permanent forces and of their equipment (giving this term its widest meaning) has led to a considerable increase in military expenditure. While acknowledging the importance of the part played by the army in the nation and the advantages the latter can derive from it, it seems impossible to describe compulsory service and the inflation of the military and naval budgets as progress.

And it is infinitely probable that, from the theoretical point of view at least, we all consider the abolition of conscription and the reduction of military expenditure as an ideal toward which our efforts should be directed.

The advantages of disarmament are not only of a financial or social order; they have an indisputable value from the international point of view. It is certain that military rivalities and competition in armaments, by overexciting public opinion and by imposing on

the nations efforts which they can not indefinitely prolong, multiply the causes of conflict and constitute a menace to peace. General and absolute disarmament is doubtless only a vain fancy and economic, ethnic, political, or even moral causes for war will always subsist, but, even should a conflict break out, relative disarmament has certain very real advantages. Smaller armies, equipped with less highly developed and less powerful engines of destruction and respecting certain international laws to a higher degree, would settle conflicts between States without involving such appalling losses of human life, devastation and ruin as those which result from wars between entire peoples. History proves this.

The theoretical advantages of disarmament, even relative, therefore can not be denied or not taken into account.

We do not think this statement can be seriously questioned by anyone.

Nearly all the authors who have studied the question have come to the conclusion, with reluctance be it said, that disarmament is, to say the least, extremely difficult.

In order that it should be possible, it is necessary that it should be collective and simultaneous: i. e., that all nations without exception should carry out the prescribed measures at the same moment. It is necessary that it should be controllable; i. e., that it should be possible to verify the honesty of those participating in the scheme. Finally, effective penalties must exist for those who attempt to violate the pact.

The present attempt at disarming Germany, to quote only this as an example, shows how difficult it is to ensure these conditions and justifies the scepticism with which any proposal of disarmament is met.

Nevertheless, certain circumstances may arise in which an attempt at disarmament would have chances of success if kept within reasonable limits. And if it is possible to make this attempt without putting the most sacred national interests in danger, it seems to us that it is our duty to give it a trial.

Present circumstances appear to be suitable for this experiment if it is agreed to limit it to naval disarmament.

In a general way naval disarmament is more easy to carry out than disarmament on land. This is due to the fact that warships have become extremely complex machines, taking a long time to build, difficult to maintain and to handle, quickly becoming old-fashioned and almost impossible to conceal.

To-day, more than ever, minute and incessant training of the crews is the indispensable condition for naval efficiency. This was proved on numerous occasions in the last war.

It seems difficult to admit that warships can be built in secret; but in any case, it is necessary for the vessels to put to sea on numerous occasions for the training of the crews and this, even in the case of submarines, can not be done clandestinely.

Surprise in the case of naval disarmament is therefore infinitely less probable than in the case of disarmament on land, and efficient control could reveal any attempt of this kind in time.

This particular of naval disarmament is true at all times.

Since our victory a new situation increases the chances of success of an experiment in naval disarmament.

This situation arises from the fact that, as Mr. Hughes remarked at the Washington conference, the German and Austrian navies have disappeared.

Practically all the naval forces in the world belong to the group of allied and associated powers. Circumstances have unquestionably never been so favorable to an understanding.

It should be remarked, in fact, that the problem can only be solved by a friendly understanding; by imposing measures, however desirable they may appear, by force, one would give rise to sentiments of bitterness or of jealousy which would run directly counter to the object in view. Disarmament should not only be material, it should exist above all in the spirit and in the heart.

Further, never have circumstances been more urgent; after the terrible sacrifices of the war, all peoples are succumbing under the weight of excessive budgets which are everywhere in deficit.

In this terrible situation, naval disarmament therefore appears to be both more easy to carry out and more necessary.

Such are, in their principles, the reasons which led the Government of the United States to convoke the conference of Washington in 1921 and which have provoked President Coolidge's recent initiative.

Without wishing to open dangerous and useless controversies, it is permissible to aver that the Washington conference did not justify all the hopes that had been placed in it.

Our public opinion retains the impression that France was treated as a poor relation, and it is a fact that we had to reject the proposals that were made with regard to light surface craft and submarines.

Our conviction that submarines àre necessary to our defence is not shared in England where it even causes undeniable uneasiness and remains a cause of painful misunderstandings in our relations with our allies.

Badly informed, the great mass of American citizens has not better appraised the necessities of our security; it has lent a too ready ear to the accusations of militarism or of imperialism which have been showered upon us.

This unfortunate result is due above all to the way in which events occurred at the conference.

In similar conferences held at The Hague in 1899 and 1907, the programs had been drawn up and limits assigned to them in advance; each of the powers had been able to study them and prepare its objections or proposals while previous conversations in private discretely cleared the ground for public discussion.

At Washington the revelation of the plan elaborated by Mr. Hughes—at the opening sitting—was a complete surprise for all the delegations: and it was under these conditions of surprise that France was publicly called upon to give her opinion on proposals which affected her most vital interests and in whose preparation she had had no hand.

As immediate publicity was given to the discussions—which was not the case with the negotiations between the United States, England, and Japan—it was easy and tempting for our country's adversaries to represent the inevitable hesitations of our representatives as proofs of bad faith or of secret imperialistic purposes. They did not lose the opportunity and this accounts for the regrettable impression left by the conference.

Far from entertaining God knows what desires of conquest, France was and still is animated with a sincere desire for peace. If, instead of being taken unawares, she had been previously consulted, she could have answered President Harding's appeal, she could still answer President Coolidge's appeal, by concrete proposals which, without endangering her interests, would have given ample satisfaction to our associates of the New World.

We are firmly convinced of this. What can be France's program of naval disarmament? What can she offer: what can she propose to the civilized world?

This is what we have attempted to specify below in a concrete form.

LIMITATION BY TYPE

The floating elements of naval power can be divided up into capital ships, light-surface craft, submarines, forming the combatant units, to the exclusion of auxiliary vessels, which are lightly armed or unarmed.

(a) SURFACE UNITS

The two first types have existed ever since fleets first came into being: the warship has always been a compromise between offensive qualities (armament, speed, radius of action) and defensive qualities.

These contradictory qualities have always been developed together to the highest degree in the capital ship, which was and still is the

most powerful and most complete unit it is possible to build under existing conditions of technical knowledge.

In the light ship, on the contrary, preponderance has deliberately been given to such or such a quality with a view to the special use for which it is intended—frigate, galley, cruiser, destroyer or fire ship, scout or corvette.

At each period in the various navies there is a tendency toward a uniform type of capital ship of maximum tonnage, while light craft are always extremely diversified.

These general laws have been particularly true during the past 40 years.

In every-day language the term "capital ship" has been used in succession for the *Brennus*, of 12,000 tons, in 1890; the *Patrie*, of 15,000 tons, in 1905; the *Jean-Bart*, of 23,000 tons, in 1913; and the *Hood* (English), of 41,000 tons, in 1919.

The plans prepared in England to take into account the lessons of the war reached a displacement of about 60,000 tons.

Under these conditions and quite apart from the rise in prices caused by the war, it is evident *that the construction of capital ships leads to ever-increasing expenditure.*

This is not the case with light craft and the history of contemporary naval construction is extremely instructive in this respect.

Each type has a tendency to remain at a displacement which depends upon the special use for which it is intended.

The limit for cruisers, for example, is about 10,000 tons, and attempts to increase or reduce this tonnage have regularly led to failure.

The armored cruiser, which was a hybrid conception, has become the battle cruiser, a form of capital ship.

The small English or German cruisers, built in large numbers, have regularly increased in size while experience has condemned the heavy cruisers derived from the *Powerful* and the *Terrible*.

In all navies in 1921 (before the Washington conference), the displacement of cruisers on the stocks or planned was approximately 8,000 tons.

In the same way all attempts to increase the displacement of destroyers have led to the appearance of a smaller type, and, under a different form it is true, the small coastal torpedo boat that was thought to be definitely condemned made its reappearance during the war.

It follows that, while the displacement of the capital ship has a tendency to attain *a maximum* which grows indefinitely with the progress in technical knowledge, the displacement of each type of light craft has a tendency to remain at *the best* figure which is prac-

tically invariable because it depends upon the purpose for which the type of vessel was designed.

The construction of capital ships therefore fatally leads to rivalities, outbidding, and competition in armaments, which involve a ruinous growth of naval expenditure. Interdiction to build such units would therefore result in the disappearance of the cause of the evil.

In order that such interdiction should be effective, it would suffice that a limit be assigned to the displacement of light craft, which, we have seen, depends upon the purpose for which they are designed and which, in the present state of things, appears to be 10,000 tons: this is, moreover, the figure fixed upon at the Washington conference.

Such a limitation of displacement would constitute an effective and easily applied measure of limitation: the possibility of building warships of over 10,000 tons displacement in secret is not even worth consideration: with regard to the protection of the legitimate interests of States, this would be assured as completely as to-day. Military power is relative: England was the mistress of the seas with Nelson's ships, just as with her dreadnoughts.

After all, the very principle of the limitation of the tonnage of units was admitted at the Washington conference. The limit fixed—35,000 tons—does not repose on any logical notion if not, so it is asserted, on the dimensions of the Panama Canal Locks. Units of 10,000 tons would *a fortiori* pass through these locks, and we do not see any reason to take a higher limit.

Why not fix a lower limit? There is a very strong reason against this. It is the possibility of arming, in case of war, fast liners whose displacement frequently exceeds 25,000 and 30,000 tons and sometimes might reach 50,000, 60,000, and even 70,000 tons.

These liners will always remain very inferior as fighting units to an 8,000 or 10,000 ton cruiser. This might not be the case if the limit for cruisers were reduced to 5,000 or 6,000 tons: here there would be a danger or at least an uncertainty which would compromise the success of the measures of disarmament.

As a practical conclusion, we therefore propose to *limit the unitary displacement of surface craft to 10,000 tons*, and, as was done at Washington, *the caliber of their guns to 8 inches.*

(*b*)—SUBMARINE

We will not enter into the details of the controversies arising from the question of submarines.

Submarines were first used in warfare during the last war under conditions which deeply struck the imagination of the crowd: a "legend" concerning the submarine exists to-day.

In reality, submarines obtained very material results; the memoirs of Admirals Jellicoe and Sims prove that unrestricted submarine warfare almost gave the victory to the Central Empires in 1917. It is the remembrance of this alarm which dominates in short-sighted minds.

What is more readily forgotten is that the German submarine offensive finally failed when the Allies were able to organize countermeasures. If they are analyzed objectively and without prejudice, the results obtained by submarines are seen to have been due to two causes, viz:

1. The submarine was a new arm whose utilization had not been thoroughly determined, whose power had been underestimated, and against which effective measures of defense had not been thought out before 1917.

2. The Germans used the submarine without observing the best grounded prescriptions of the law of nations, and by striking at all who passed within their reach, in the immense majority of cases, these being victims incapable of defending themselves.

The extent of this massacre gained for the submarines a reputation of almost supernatural power and the barbarity of their "exploits" drew down on them the reprobation of the civilized world.

This double reaction of opinion is, as it were, classical; it occurs on the appearance of every new arm: Gunpowder, torpedoes, aircraft, etc.

It is so strong in certain earnest and generous minds that they think war will be rendered impossible in the future by the power and the horror of the new engine of destruction. Victor Hugo's famous "prophecy" in "Plein Ciel" is well known; we could cite "forecasts" of the same kind with regard to submarines.

In practice, after a first movement of surprise, the means of defense against the new arm is found, one becomes accustomed to it, and instead of eliminating war or all the other engines of destruction, it is simply added to the list. At the most it takes the place of certain less highly developed methods of killing.

Nothing allows one to suppose that the submarine falls outside this historical law; everything indicates, on the contrary, that it obeys it, and the last war has exposed the rational limits within which it can be used.

But unenlightened public opinion is not sensitive to these reserves; deeply struck by what it thinks it knows of the part played by submarines in the last war, it retains the feature which appears to be the most prominent, that which circumstances or the press have placed before it in the brightest light, and it retains this one alone. This feature may vary with the conditions peculiar to each people,

and it is thus that American and English opinion has been particularly struck by the character of horror of submarine warfare, while in France it is the idea of power which predominates.

As frequently happens, this irrational popular conception is accompanied by a certain mysticism. It can be said that on the whole the submarine is a "diabolical invention" for the average citizen of the British Empire or the United States, while the Frenchman sees in it a "providential" means of naval defense.[1]

This state of mind gives an impassioned character to discussions relative to submarines which renders them dangerous when they are international.

Thus, when at Washington the English delegation proposed the interdiction of submarines, French public opinion took this to mean that "England wishes to take away the only effective arm remaining to us, to hold us at her mercy," and flew into a violent passion. And when our representatives pointed out that we required about a hundred submarines, England replied by the mouth of Lord Balfour, "It is evident that you wish to be in a position to starve us."

One may regret that the question should be put in such an irritating manner, but it is a fact that it is. Nevertheless the British Admiralty knows full well that 90,000 tons of submarines, a hundred units, are not a danger to the food supply of the British Isles: above all, if they are employed in accordance with the international laws of the law of nations, which French seamen have always respected, and we know that the necessity for a large submarine fleet is above all due to our crushing inferiority in battleships which is derived from circumstances and treaties.

If this inferiority disappeared through the limitation of surface craft to 10,000 tons, *we could give up building submarines.*

This measure would have a very happy repercussion on Anglo-French relations, but it would also have very real advantages from an international point of view.

In the first place, it would allow a very considerable reduction in expenditure. Submarines cost 50 per cent more than cruisers for an equal tonnage; further, the existence of submarines involves that of a very large defensive force, including chasers, airships, patrols, nets, mines, detectors, etc., whose acquisition and maintenance cost more than those of the submarines themselves.

Further, the disappearance of submarines would involve benefits of a moral order. The discussions at Washington showed how difficult it is to fix practical rules for the use of these vessels. Every

[1] It is very interesting to recall in this connection that since England's final victory in the duel for the empire of the sea which lasted from the sixteenth to the eighteenth century, French opinion has always had a tendency to turn away from the standard regular arms of naval warfare and to expect success from a magical invention, from what Commander Castex has called a "martingal."

discussion of these craft gives rise to difficulties and conflicts in which the press and public opinion take part and which it is easy to embitter. It is not only the story of yesterday which shows to what danger peace is exposed by these international controversies. To render them vain by eliminating the object is therefore to do useful work for the maintenance of peace in the world.

Such are in a few words the reasons for which the interdiction of submarines *as a corollary to that of capital ships* is, in our opinion, both desirable and realizable.

LIMITATION OF FLEETS

For a fleet of normal composition a reduction in expenditure of at least 50 per cent would be brought about by the elimination of capital ships and submarines; it is evident that this saving would be illusory and the result of the measures of disarmament deceptive, if each nation remained free to build light units in an unlimited quantity and to continue competition in armaments in this form.

As Mr. Hughes has affirmed, the only way to obtain a definite result is to fix the limit of the total tonnage attributed to each navy at the same time as that of the units. This is also the mode of reasoning maintained by France at Geneva in discussions relative to disarmament.

This is, and we do not attempt to disguise the fact, an extremely delicate task; not only is it very difficult to determine the real needs of each power, but questions of national rivalry or even of legitimate ambitions intervene which it is impossible not to take into account. Circumstances may change; in fact, the navy of any particular power may be momentarily reduced in size as is the case with France in 1927 and as was the case with England in 1880; its trade, its overseas interests, and its emigration may develop. By what right can this nation be prevented from having a fleet in proportion to its requirements? Such a pretension would be iniquitous; it would also be chimerical.

It follows that a limitation can not be imposed without possibility of revision and that it should be revised at fairly short intervals; this was understood and admitted at Washington. It also follows that a momentary abnormal situation should not be taken as a basis for fixing the proportions, above all when it is as exceptional as that existing after the war, but that they should be fixed in accordance with the permanent general policy of each nation.

We do not claim to fix any figures definitely, but we think it will serve a useful purpose to point out that there is a method less brutally unjust than that of Washington to which it would be possible to have recourse.

We will admit, with the interested parties themselves, the principle of the naval equality of England and the United States: and we will start from this point to examine what coefficients can be legitimately claimed by European fleets.

The immovable basis of British naval policy during contemporary times has been the principle known by the name of "The two-power standard." The British fleet must be at least equal to the next two most powerful European fleets combined. When the development of the German Navy became a direct menace to the British Empire, the application of the principle led to the "Two keels to one" formula, the construction of two English units in reply to each unit laid down in Germany, but the fundamental rule does not change and we can consider it as a constant of British naval policy.

It is moreover a principle we can accept: the *upper* limit of any European fleet must therefore be half the British fleet. We wish to make it quite clear that this limit is a *maximum* and not a compulsory level.

The bases of Italian naval policy are less ancient and more open to discussion. Before 1914 the objective of the Italian Navy was the mastery of the Adriatic, and it was on the effort of her ally, Austria, that she based her own building program.

At Washington the Italian delegation affirmed that the policy of our neighbors was henceforth equality with France or more exactly "with any power situated on the Mediterranean." The formula moreover is ambiguous, for England is not absent from the Mediterranean.

We think it would not be difficult to establish that France's political, economic, and military interests in the Mediterranean are very superior to those of Italy: to recall to mind that the equality claimed has never existed and that it would constitute a very real relative growth of Italian naval power.

These are facts which our generation, heir to a long Mediterranean past, has not the right to forget, but their statement is not of a nature to facilitate an agreement.

As a pledge of our will to come to this agreement and specifying that it is a question not of admitting a permanent principle but of making a concession with a view to the success of a first attempt at disarmament, we can accept the equality of the French Navy with the Italian Navy *as a Mediterranean fleet.*

But, and this must be *an irreducible condition, this equality in the Mediterranean must be effective;* and as France has coasts on the Atlantic and on the English Channel, as she possesses the second colonial empire in the world, she should have extra naval forces which it seems impossible to value at less than 50 per cent, for the protection of her interests outside the Mediterranean.

If, therefore, we take the Italian fleet as a unit, the limit of the displacement of the entire French fleet would be 1.5,[2] and if we refer to the above observations, the displacement of the British fleet at least 3.

The details and adjustment of these coefficients, we repeat, are open to discussion; in their main lines, it is undeniable that they repose on a historical, logical, and equitable basis.

For Japan, the coefficient of three-fifths of the British fleet has been accepted by all the interested parties at Washington, but nothing was fixed as regards the other navies, many of which nevertheless (Holland, Spain, and the South American countries) represent considerable interest and have proved their worth in past battles. They have a voice in the chapter, all the more so as the agreement signed in 1902 between the Argentine and Chile constitutes a remarkable precedent as regards the limitation of naval armaments.

It seems at first sight that a common limit approximately equal to two-thirds of that fixed for Italy would be suitable.

There remains the task of assigning suitable limits to the German, Russian, and Turkish fleets, but here there do not appear to be any special difficulties.

As a simple indication and in order to fix the above ideas, the following figures might be decided upon:

	Tons
England	500,000
United States	500,000
Japan	300,000
France	225,000
Italy	150,000
Holland, Spain, The South American countries	75,000–100,000
Germany, Russia, Turkey	50,000

If the tonnage in light craft which figured in the French naval statutes bill were taken as a point of departure, the following figures would be arrived at:

	Tons
England	800,000
United States	800,000
Japan	480,000
France	360,000
Italy	240,000
Holland, Spain, The South American countries	160,000

[2] We could undertake not to concentrate more than two-thirds of this total in the Mediterranean, which would respect the principle of equality.

The adoption of such a program would lead to a reduction of 60 per cent in present naval expenditures. For France, in particular, the result would be *a saving of 600,000,000 francs per annum.*

CONCLUSIONS

We thus come to three proposals whose advantages of a moral and financial order are not open to discussion. We think we have shown that they repose on logical bases and that there is nothing chimerical in their realization. They suppose only that there is a sincere desire for peace and a loyal resolution to do everything possible to further it in all peoples.

Is it Utopian to hope for success?

Only an experiment carried out in good faith can say; and it is of this experiment that we propose France should take the initiative. Under the form in which we conceive it, it can be without danger.

If it should fail, *it would affirm in a conspicuous manner in the eyes of the world that in spite of odious calumny it is not on France that the responsibility for the armaments which weigh so heavily on the bruised shoulders of post-war generations incumbs.*

This consideration alone would suffice, we think, to justify our initiative.

We therefore ask the chamber to vote the following motion:

RESOLUTION

The Chamber of Deputies requests the Government to propose to all civilized nations a plan for the limitation of naval armaments including simultaneously—

1. The limitation of the displacement of surface craft to 10,000 tons per unit and of the caliber of their guns to 8 inches (203 millimeters).

2. The interdiction to keep or to build submarines under any form whatsoever.

3. The limitation of the total displacement of navies on equitable bases, in accordance with the recognized principles of politics, geography, and history, such as they are set down in the statement of the motives of the present motion.

NOTE.—The above article is included in the "Bulletin" as an indication of the viewpoint towards disarmament of a certain group of the public men of France. This group is not predominant, however, as the abolition of the submarine is vigorously opposed by most Frenchmen. As far as is known, nothing came of the above proposition. Attention is invited to the special article section of this "Bulletin."—Ed.

GERMANY

A. NAVAL

1. New battleships.

[Source: English press]

The German naval authorities are at present studying a problem of great technical interest and no little difficulty. It concerns the design of ships which are urgently needed to replace the eight antiquated battleships that comprise the existing battle squadron of the "Reichs-Flotte." These latter belong to the *Braunschweig* and *Deutchland* classes, dating from 1903–1906, and therefore entirely obsolete. They are deficient both in gun power—each mounting only four 11-inch guns of a very old model—and protection; their present speed is low and structure and machinery have so deteriorated that it is no longer considered worth while to spend any large sum for repairs. Such value as these ships possess is mainly relative; that is, they serve in some measure to preserve the equilibrium in the Baltic, where the Russian Soviet Navy, despite its notorious inefficiency, still makes a formidable parade on paper. Were Germany to discard her battleships, she would have to surrender the control of the Baltic into Russian hands, and that, for obvious reasons, she has no intention of doing. Nevertheless, as the old ships are now approaching the extreme limit of useful service, it has become imperative to replace them. This would be simple enough were it not that the design of future German warships is subject to severe restriction under the treaty of Versailles. The maximum displacement permitted for new armored vessels is 10,000 tons. As the treaty apparently does not define the meaning of "displacement" in this sense, the Germans argue with some show of justice that it should be taken as signifying the "standard" figure established by the Washington covenant; i. e., the weight of the ship as completed for sea, but exclusive of fuel and reserve feed water. From the German angle of view, this is a point of capital importance, for the addition of 2,000 or 3,000 tons to the full-load displacement of a small battleship might make all the difference between success and failure in the case of a new design. Without attempting to prejudge the issue, we are of opinion that Germany's claim to interpret the 10,000-ton limit as "standard" displacement should receive sympathetic consideration.

Be that as it may, the question has passed from the academic to the practical stage by the reported decision of the German ministry of defense to resume the construction of armored ships at an early date. According to an authoritative article in the Vossische Zeitung,

the general features of the projected type have been under discussion for some time past. Political and strategic requirements call for a vessel capable of engaging without undue risk any capital ship likely to be encountered in the waters of northern Europe, where the Russian dreadnaughts, *Paris Commune* and *Marat*, of 23,370 tons, a nominal speed of 23 knots, and a main armament of twelve 12-inch guns, are at present the most formidable units. Artillery power is therefore an essential feature of the design, and protection is also of great importance. On this latter point the Vossische Zeitung writes:

> Protective armor, which was overestimated in the past, will give place to modern cellular construction, triple bottoms, and longitudinal bulkheads; only the really vital parts of the ship—i. e., machinery spaces and gun positions—will have armor plating. As for complete water-line protection, that can be dispensed with; far more important is it to have improved protection for the magazines, in view of experience at Jutland.

With regard to propulsion, steam machinery of any description is rejected on the score of excessive weight and space. Since the new vessel will not be expected to operate on the high seas but is designed mainly for coastal service, it need have neither great speed nor a wide radius of action. Internal-combustion engines are therefore favored and will probably be adopted. A comparatively small and compact Diesel plant would suffice for the moderate speed that is aimed at, and oil stowage for an endurance of 2,500 knots is held to be adequate. No funnels are provided, and both freeboard and superstructures have been cut down to the minimum consistent with seaworthiness. As will be seen, the ship projected has many attributes of the monitor, of which it is, in effect, an up-to-date development.

The question of armament has not yet been finally decided. While, on the one hand, guns of 16-inch bore are favored in some quarters, in order to give the new ships a caliber equality with the latest foreign battleships, the consensus of opinion favors lighter weapons, preferably the 14-inch 50-caliber mark, which was to have been installed in the unfinished battle cruisers—*Von Spee* class—of the war program. Emphasis is laid on the reputed fact that Krupp guns are considerably lighter than foreign pieces of corresponding caliber, and at the same time are equal, if not superior, in ballistic qualities. In this connection it is undeniable that the German 12-inch and 11-inch pieces in action at Jutland proved to be far more powerful than had been suspected. It is estimated that, on a displacement of 11,500 tons—equivalent to the "standard" figure of 10,000 tons—it would be possible to mount eight 14-inch guns. This would represent about 30 per cent of the total displacement, a percentage abnormal in a ship of conventional design but regarded as permissible in the case of the ship under review, owing to the very moderate weight of mahinery and the ample lines provided. An

alternative suggestion of six 15-inch 45-caliber guns, such as were mounted in the *Bayern* and *Baden*, has been rejected on the grounds that it would involve too great a reduction of either bow or stern fire. It is of interest to observe that German naval experts are almost unanimously opposed to the triple turret, the theoretical objections to which, they pertinently remind us, have yet to be disproved by the test of actual experience. This particular question was raised by the suggestion of mounting six 15-inch or 16-inch guns in triple turrets, which was declined both for technical reasons and because "two turrets would not make enough of an impression even on possible Baltic adversaries of the German Navy."

In view of the gunnery records of the late war it may reasonably be assumed that one ship armed with eight 14-inch guns might engage another mounting eight 15-inch, or even 16-inch, without necessarily suffering defeat, especially if the former offered a smaller area of target and was less vulnerable to blows in a vital part than her opponent. Thus the projected German vessel, which is unofficially styled the *Ersatz Braunschweig*, would not only be demonstrably superior in fighting power to the 12-inch gun Russian dreadnaughts, themselves past their prime, but need not shrink in artillery duel with ocean-going battleships of the lastest type provided the combat took place in waters where seaworthiness was a consideration of minor importance. The design of ships for any navy must perforce be determined in large measure by the venue of operations. Criticisms of the diminutive battleships which the minor naval powers of Europe have seen fit to build usually ignore the peculiar strategic conditions which governed their design. A great superdreadnaught, all powerful on the broad ocean, would be reduced to impotence in shoal water, and might even be subjected to the humiliation of bombardment from the high-angle guns of a puny antagonist to which it could not reply. All things considered, therefore, the reported German decision to build ships reminiscent of the coast-defense ironclads of a bygone age has much to commend it. They will enable Germany to hold her own in the Baltic, and, even if it be necessary, to deploy in the North Sea a squadron of sufficient power to deter attach by any save a hostile fleet of the first magnitude. A criticism of the technical features of the design must be postponed until official details are available.

At this juncture we need only point out that recent years have witnessed many improvements in the science of ship construction, marine engineering, and naval ordnance, all of which tend to facilitate the design of future warships, whether large or small. Twenty years ago it would have been impossible to build a small coast-service armor-clad which even under the most favorable conditions could have stood up to a contemporary battleship of the

first rank. To-day, however, as will be seen from the foregoing sketch of the projected German design, a vessel of very modest tonnage may be endowed with tactical qualities of a high order, provided that the inevitable sacrifice of speed be accepted. In reviewing current German discussions on naval design we are impressed with the cardinal importance attached to gun power. The submarine occupys a wholly subordinate place in future naval operations, as viewed through German spectacles, and, although this fact may be due in part to the mental processes evoked by the Versailles treaty, we are rather inclined to think that it reflects the interpretation by the logical German mind of the lessons of the late war at sea, in which the supremacy of the artillery weapon in ship to ship duels was demonstrated beyond argument.

NOTE.—Since the above was written, the constructional staff of the admiralty, in conjunction with German shipyards, have completed the plans for the above-mentioned 10,000-ton motor-engined battleship. In addition to the "Paris Commune" and the "Marat," Russia has two other battleships of this class, which are, however, in a very doubtful condition.—Ed.

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2. *Fitness reports in the German services.*

[Source: German press]

Admiral von Tirpitz makes the following statement in his latest work (Germany's Weak Policy in the World War):

The development taken by our high-seas fleet was essentially wrong in that the commander in chief of the fleet was not subject to criticism, and held the future of every individual, especially the high-ranking officers, in the hollow of his hand.

Further:

This development of the commander in chief of the fleet, who suppressed all initiative in an officer if it did not coincide with his own ideas, had much to do with the fact that our tactics were bound hard and fast to a certain definite receipt, and thus prevented the development of any real naval leaders.

The power of the senior officer over the fate of his subordinates is a necessary point in the army and the navy. It guarantees that the subordinates will execute the orders of their superiors meticulously. Even though this power may on occasion have been put to wrong use and obedience forced in an instance where the subordinate's point of view may have been more correct than that of his senior, still these were only rare exceptions which do not justify the alteration of the system. The appointment of officers with the right of interference and suggestion has always led to the destruction of discipline and to the deterioration of the military value of the troops. This was proven in the German Army when the soldiers' councils were introduced, and is evident to-day in the Russian and Austrian Armies,

whose military value is destroyed by the commissar. Such a course is absolutely false.

The power of the senior is greatest in estimating the "fitness" or "qualifications" of the subordinate. However, the army and the navy not only require well-disciplined and well-trained but also energetic leaders with initiative. If we desire to be frank, we must admit that with us greater weight was laid on the first two points than on the last two. And yet everyone must admit that the last two are not by any means the least. In our army great value was attached to these two points in a purely theoretical way, but there were regulations and arrangements which militated directly against them. According to Tirpitz, one such arrangement was the embodying of maximum authority in the person of one individual whose ideas and points of view were not in turn subject to correction or criticism by a senior. I believe another was the arrangement whereby the officers' "fitness reports" from the grade of captain on were submitted and prepared by their immediate seniors. For instance, if the fitness report of the captain of a company is to be prepared by his battalion commander, there is danger that the captain will first ask himself before making any move: "Is this in accordance with the ideas of my battalion commander?" and he will therefore not do that which he himself considers right and proper if it does not happen to correspond altogether with the viewpoint of his immediate senior. A very energetic battalion commander will stifle all independence in his subordinates and will produce obedient and conscientious but not independent and determined leaders.

Things would be altogether different if the next senior but one had to make out the first and fundamental fitness report. Every captain of a company desires to put his own (and perhaps altogether new) ideas into effect. This will often lead to a sane, healthy development and will most assuredly develop the intellectual life and enthusiasm as well as the attributes of independence and determination. However, it will not always meet with the approval of the battalion commander whose own tour of duty as captain of a company is still vivid in his memory and who is bent on the homogenous training of his battalion and would like to see his ideas (which seem to him practical and correct) carried out in his companies. The regimental commander who views things from a higher post and at a greater distance from the captain of the company will view the activities of the captain much more dispassionately.

The conditions are similar in the higher ranks. The preparation of the fundamental fitness report of the first staff lieutenant by the commander of the regiment has always seemed to be especially dangerous and risky. The objection will be raised that the senior officer of two grades higher will not know the subject in question

as well as the officer immediately above him. But this is not true. Even in the present system of quartering the Reichswehr, whereby the regiment is usually divided over three or more garrisons, the commander of the regiment has sufficient opportunity on the maneuver grounds to get to know his officers. He can also request reports from the commander of the battalion, and in this system the report of the latter is not the last word in the matter, as his report must then be carefully examined and considered by the commander of the regiment who does not stand as close to the person in question as the former.

The objection that the direct system of preparing fitness reports serves to strengthen the position of the immediate senior and thus heightens the discipline is worthy of more consideration. However, it would seem as though the immediate senior had sufficient means in his power to insure obedience and discipline without this right. Whether or not this is the case must naturally be looked into more carefully. If this question is answered in the affirmative, then the proposed alteration in the system of preparing fitness reports is to be welcomed in the interest of the training and development of independent personalities.

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3. Naval personnel organization.

[Source: German press]

Our new naval budget shows a strength of 9,935 men, exclusive of officers. These 9,935 men have 4,979 superiors over them. There is an officer for every two men. Of these, 1,225 are officers and 3,754 noncommissioned officers. Added to this military apparatus, there is still an army of 1,784 officials and 204 auxiliary officials, 1,538 clerical employees, and 2,000 watchmen, workmen, etc. To sum up, the 10,000 men require an administrative and auxiliary corps bringing up the number to 500 more than the navy itself! It will be easy to conceive that it was no simple matter to provide the organizational basis for such a peculiar ratio. This basis had been provided in the so-called plan of organization of the navy which, in the clever way in which it is drawn up, gives the impression as though it had to do with the organization of a large military force. There is no official, no matter how insignificant, who is not most carefully mentioned. And it requires very careful study and some knowledge of the subject to ascertain that three-fourths of the entire plan deals purely with unimportant secondary positions.

It is worth while to take this plan of organization and study the actual organization in detail. At the top is the "navy administration" (marineleitung). The composition or make-up of this depart-

ment is the least clear of all in the plan of organization, which otherwise pays the most minute and careful attention to the most insignificant positions. But perhaps not without reason. For here we are faced by the astounding fact that in spite of the fact that to-day our navy only represents a very modest fraction of its former strength, the navy administration considers it necessary to have almost the same organization as the former navy department, created for the large pre-war fleet. The navy administration to-day in its four large departments numbers no less than 17 divisions. At the very head is the chief of the navy administration. His province is divided into four divisions: The staff of the navy administration, the naval officers personnel division, the budget division, and the medical division. Then comes the bureau of naval command; under this are the naval defense division, the fleet division, and the training division. The general navy department comes third with the defense division, armament (ordnance) division, nautical division, and naval transport division. And finally the naval administration office with seven subsidiary divisions—personnel division, the administrative division, the construction division, the legal division, the naval archives, the naval peace commission, and the U group (the aid division). But now, what personnel does the budget consider necessary for this administrative department of a navy consisting of 6 little ships, 6 small cruisers, 12 large torpedo boats, and 6 coast-defense divisions? One admiral, two rear admirals, twelve captains, and thirty-four officers of the rank of commander and lieutenant commander or lieutenants. Added to this number are two more officers, making a total of 51 officers holding positions in the navy department. It is interesting to compare this with the navy budget of 1914; at that time 92 officers were necessary for the navy department, the admiralty staff, and the navy cabinet, as compared with the 51 officers of the same rank who to-day are detailed to the navy administration. It is impossible in the face of such a comparison to close one's eyes to the fact that at such a time as the present, in which economy and reason should be the guiding principles, we have an overorganization of a phantastic size which exists undisputed and unquestioned.

And the same system exists in all other administrative departments of the navy. First we have the " fleet command." The fleet command was organized only last year under the command of a chief of fleet, covering the following ships: 4 small battleships, 3 small cruisers, 12 large torpedo boats, 6 mine sweepers, 1 very small ship for special duty, 1 survey ship, and 2 tenders. In spite of its modest size, this fleet is still divided into three further administrative divisions at the head of each of which is an admiral and his staff. Furthermore,

there is a chief of the battleship division, a commander in chief of the North Sea forces, and a commander in chief of the Baltic forces. It is not right clear from the plan of organization just what the duties of the chief of the battleship division actually are. For two battleships are assigned to the commander of the North Sea forces and two to the commander of the Baltic forces, to whom there is furthermore assigned one or two small cruisers and one torpedo boat flotilla. For the chief of the battleship division—quite apart from the chief of the fleet—there seems to be nothing left over to command. The uninitiated layman involuntarily asks what are the functions of this administrative system in its many dovetailing and overlapping divisions of so many high ranking officers and staffs, when there are so few ships?

Before the war there was neither a commander of the North Sea forces nor one of the Baltic forces. The post of commander in chief of the Baltic forces was only created after the outbreak of the war, and this not so much from necessity as to afford an active post for Prince Henry who up to that time had acted as general inspector of the fleet with headquarters at the palace in Kiel.

For the sake of simplicity, the parallel post of commander in chief of the North Sea forces, which formerly never existed, was also organized. There are also two naval station commands, one for the North Sea in Wilhelmshaven and one for the Baltic in Kiel. Naturally a vice admiral is necessary for such a post and equally naturally he must have the necessary apparatus for the execution of his office. It is interesting to note from the plan of organization the extent and scope of the apparatus under the jurisdiction of this officer. It may suffice to examine in detail the Baltic station in this regard. Under his jurisdiction comes the navy commissioner for the Kaiser Wilhelm Canal (the navy has naturally nothing to do with the administration of the canal), the harbor captain (who naturally has nothing to do with the commercial harbor but only with naval vessels when in Kiel), the Baltic liquidation office, and the Baltic vessels consisting of a couple of boats and one tender. Taken all in all, this represents three small offices and a couple of extremely small boats. Added to this, but more indirectly, two commandants in Swinemunde and Pillau, three coast defense divisions in Kiel, Swinemunde, and Pillau, the Baltic division and a number of coast communication and radio stations which look very imposing in the plan of organization, but six of which are, in point of fact, out of commission, and those that are in commission are probably run by a half dozen men. When this vice admiral, as chief of the Baltic station, glances out of the window of his office in the imposing station headquarters (the former naval academy) toward the harbor he

will scarcely see one sailor and most certainly no naval vessel under his jurisdiction.

Since such a field of activity was not sufficient to justify outwardly such a tremendous apparatus, all the former "inspectors" (for training, torpedo and mines, naval artillery and depot, each with a commanding officer and a large staff) were slowly recommended by the Reichstag as being unequivocally necessary, and then they were divided between the two stations as under officials. The depot inspection just mentioned, which is included under the higher naval officials, is a post which was organized just shortly before the war. Up to that time, that is, up to ten times the size of the existing navy, there was no need of such an inspection. The torpedo and mine inspection for 12 large torpedo boats (we do not have the 12 small boats of 200 tons which are permitted under the treaty, as they are long out of date as military weapons) and for the torpedo tubes of the warships and cruisers, about 80 tubes in all, and for our very small mine division, (which in spite of its importance as a means of defense has been handled in a peculiarly niggardly way) has a corps of 105 civilian officials, besides the military personnel with a rear admiral at the head as inspector.

As further divisions of the navy administration, we have five naval transport divisions in Luebeck, Stettin, Koenigsberg, Bremen, and Hamburg. Before the war these were represented by four coast district offices under the direction of a retired officer, which besides the present naval transport station duties, also had other functions.

Finally, we have the technical institutes, administrative officials, naval hospitals, etc. All in all, an organization quite in keeping with the conditions existing before the war when our fleet numbered 200,000 men. One wonders how we can manage to get along today with 17 military court counsellors when in 1914 we required "only" 27.

It would be interesting to ascertain what percentage of this administrative and commanding apparatus is to be designated as artificial, "no-load" work!

NOTE.—The German naval estimates of 1927 amount to close to $55,000,000, an increase of $6,000,000 over last year and about half of the 1914 estimates.—Ed.

B. AERONAUTICAL

1. Zeppelin manufacture.

On passing through Friedrichshafen recently a call was made at the Zeppelin works, on Director W. E. Doerr. He informed me that no construction work was at the present time being done at the Friedrichshafen plant, but that studies were being made for an

airship 50 per cent larger than the *ZR–3* (*Los Angeles*) for the projected transatlantic flight. He said that the main problem connected with large lighter-than-air craft was the question of fuel. If liquid fuel was used, there was no feasible method of replacing the weight of the expended fuel, which made it impossible for the airship to come to a landing without releasing a considerable part of its gas bag contents, which was costly both in money and in time to replace. He said that a substitute gaseous fuel had been secured and that an airship was now being planned for the purpose of testing it.

He said the English were building a Zeppelin 50 per cent larger than the one projected by the Zepplin Co. The Zeppelin Co. wished their English competitors every success in their endeavors, but considered the undertaking too rash, as it was impossible to foresee the difficulties of making so large a leap forward in size of construction as had been undertaken by the English. The Zeppelin Co. preferred to progress by more conservative stages.

In response to a question whether the Allies were making any further difficulties over the destruction of the Zeppelin construction shed in Friedrichshafen, Mr. Doerr replied:

No. We sent a commission to Paris to explain to the French and prove to them conclusively that Zeppelins of any size were absolutely useless for bombing as they were the most vulnerable of targets in the air. As air bombing was all the French were afraid of, they raised no further objection to the continuance of our plant, once we had disabused their minds on this subject. The only possible use of aircraft in war time is as overseas scouts, since at sea they always scent danger from a distance and make their escape, while on land they are bound to fall a prey to the antiaircraft defense.

Mr. Doerr said that the Goodyear Zeppelin Co. had now been formed and were bidding for a new Zeppelin to be constructed for the United States Navy. Twelve of their best workmen were now at the Goodyear plant at Akron working on this project, which was expected to be built somewhere in America, probably at Lakehurst, although it could be built in Germany for 50 per cent of the cost.

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2. The Seville-Buenos Aires air line.

[Source: German press]

Dr. Hugo Eckener, the director of the Zeppelin Co., has just returned from a journey to Spain and yesterday gave an interview to the press regarding the present status of the negotiations between the Zeppelin Co. on the one hand, and Spain and the South American countries on the other in connection with the Spanish-South American air line. The original negotiations were begun in the year 1921

but had to be postponed on account of the difficulties in Morocco. However, toward the end of last year a subsidy agreement was finally made with the Spanish Government which, after numerous changes, was finally approved by the King the middle of this month. According to this agreement, the Spanish state provides the funds in the form of a subsidy for executed flights through the construction of the airport in Seville and, in case the service is discontinued, reimburses all previous outlays. Since similar agreements have already been made, or are about to be made, with South American governments, the execution of the gigantic plan is finally an assured fact.

The Zeppelin Co., the German party to the agreement, is to furnish the airship *LZ–127* which is now in process of construction and which embodies notable constructive improvements over the *ZR–3* which was delivered to America. This ship will be finished in the spring of next year and will be turned over to the new undertaking in the form of a charter contract. Later on, if the air line proves a paying proposition, which no one doubts, three or four ships will be put into service.

The plans of the Zeppelin Co. had to compete with French proposals almost from the very beginning, the French idea being to use French airplanes in a relay service. The French aeronautical company Latecoère was given a contract by the Argentinian postal ministry for carrying 40 per cent of the Argentine-European letter mail by air, but objections were raised to this by the Spanish Government and the agreement is, therefore, temporarily in abeyance, principally because the Argentine Government realizes that such a service, dependent on airplanes and ships, would take much longer than a direct airship service and, therefore, would not pay.

The Zeppelin airship can cover the route Seville-Rio de Janeiro-Buenos Aires in approximately 3 to 4 days while the combined airplane-ocean vessel service would take from 7 to 8 days as compared with the ordinary steamship service of 15 to 16 days. Added to this, the airship will be able to carry about 15 tons of freight while an airplane at the present status can only carry from 1,600 to 2,000 pounds at the most. Besides this, the airship is much more independent of weather conditions than the airplane.

The task of the *LZ–127* will not alone be to furnish the world with evidence of the utility of the Zeppelin over vast expanses of ocean and thus prove the vital principle embodied therein, but its principal mission on these flights will be to shatter a threatening foreign traffic monopoly in the southern Atlantic and hold the field open for German competition. Therefore the projected air line between Spain and South America implies a question of prestige for Germany of very tremendous importance. It is regrettable that the

German enterprise encountered hindrances on the part of other German interests also advocating a Spanish-South American air line with airplanes, it not being taken into consideration, that if the question were one of airplanes rather than airships, the contract could only go to the French company.

NOTE.—Further details of the Spain-Argentine airship route were given in the April and May Bulletins.—Ed.

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3. The Rohrbach airplane plant at Berlin.

A visit was recently made to the Rohrbach airplane plant, Berlin. At present they are employing 270 workmen at the plant and 140 technical staff at the office in the Friedrichstrasse.

They are finishing a seaplane called *Rocco*, an experimental flying boat for passenger service, for the Luft Hansa, to carry 10 passengers and a crew of two. A description follows. This plane is to be completed in two weeks and shipped to Copenhagen for trial. They have orders to build three more of this type for the Luft Hansa. There is also under a construction a Roland passenger land plane for the Luft Hansa; carrying capacity for 10 passengers and a crew of two. Two of these planes are now in the service of the Luft Hansa and this plane under construction is a third of an order for 12 such planes for this concern.

They are also building two more Robbe flying boats, model 2; these have just been begun and are practically the same, with minor changes, as the two Robbe machines already finished. Two bombing planes which were completed at Copenhagen have been delivered in Turkey and have passed their tests and been accepted.

Doctor Rohrbach said that the 100-passenger plane at present being designed at the Dornier plant is not for Japan but for the Luft Hansa, and that it is not being designed to carry 100 passengers, but a load equivalent to 100 passengers. He said that his firm has a similar order from the Luft Hansa, upon the design of which they are now engaged, and that this is a competitive design between the two firms. He said that he had kept the matter quiet while the other firm had allowed it to leak out. He is also engaged on the design of a 25-passenger flying boat for the Luft Hansa, similar to the one recently delivered by the Dornier Company. This would be a double decker and have a wing spread of 104.96 feet and have three motors of 650 horsepower each. The 100-passenger plane is to have four motors and a total of 2,000 horsepower.

The Rohrbach flying boat *Rocco* is a monoplane with floats, driven by 2 Rolls-Royce Condor motors of 650 horsepower.

The dimensions are as follows:

	Feet
Length over-all	63.3
Span	85.2
Height over-all with operating propeller	21.8
Beam	5.7
Draft at full load	3.6

The boat-shaped fuselage with its distinct keel and high cruiser bow can accommodate 10 passengers, luggage, freight, a crew of three, as well as all the necessary flight equipment. At a short distance behind the pilot's cockpit, the wing halves are attached to the upper edge of the fuselage (so that they can be taken off) and each is supported by two struts to the fuselage. The entire fuel supply is carried in the wings. The ailerons are attached to the rear end of the fuselage so that they also can be removed while the elevators are suspended from the fin and each braced underneath by a strut.

The boat-shaped floats are at the sides, parallel to the fuselage and are attached to the wings by detachable struts. The two motors are located high up on top of the wings on two special struts at either side of the fuselage so that the air propellers are not subjected to spray. Owing to the detachability of the entire plane, shipment is made easier and cheaper, and the assembly is also simpler and can be effected more rapidly. All parts are interchangeable so that it is only necessary to have a small stock of spare parts for the entire plane.

Owing to the very favorable arrangement, the flying boat posesses a very high degree of seaworthiness. At full load it can take off and land satisfactorily in a seaway of 4–5. The sharply keeled form of the bottom insures a favorable distribution of the bottom forces, soft landing, decreasing of the shocks when taking off, protection from spray, and the sharp prow cuts through the swells when taking off, without any great increase in resistance. Satisfactory maneuvering is also possible even during high winds (40 ft./sec.) owing to the lateral arrangement of the motors, and even should one motor drop out, the boat can be easily held to the course by slight rudder action. The form of the boat and the float arrangement give the boat a high longitudinal and lateral stability on the water, so that the boat can ride out a storm, without any danger. Sails can also be added so that in case of emergency the plane can reach the next port, as a sailboat.

The flight properties are very good owing to the good equalization of weight, the correctly arranged and dimensioned control surfaces, and the dihedral of the wings, as well as the stability in every kind of flight, so that even in very squally weather, the plane can be flown easily.

The flight performances, the speed, and the climbing properties are also very good, as well as the cruising radius and the weight of the plane.

The boat is equipped with a special type of beach trolley. This consists of a pair of floatable wheels fitted to the wings. The end of the fuselage is supported on a tail car. On a natural strand, the boat is capable of taxiing under its own power on land or water.

MATERIAL

The plane is constructed entirely of duralumin, only the fastening reinforcements and bolts of the detachable parts, as well as the struts and fuel tanks, are made of brass. The metal is only used in the form of plat plate, strips, and open profiles. Owing to the system of construction, it is easy to protect all parts against corrosion. There are no hollow profiles and no inaccessible hollow spaces at points of intersection, etc. All rivets are accessible on both sides. All outside plates are smooth and full, which is advantageous aerodynamically, and results in a much simpler form of construction owing to the absence of any frame diagonals, and furthermore produces a very strong construction. Hull and wings can be walked upon and the risk of damage by the crew is very slight, owing to the strong outer skin, which increases the life of the machine very considerably. Owing to the exclusive use of light metal in the construction without any fabric or wood, the flying boat can remain moored to the buoy for a longer time uninfluenced by weather conditions. Any repairs can be carried out easily and quickly with the simplest agents, as the plates and angles are all joined by free rivets; therefore only a very small supply of parts is necessary.

Very great care has been paid to the point of conservation. Since sea water rusts the steel parts and duralumin corrodes, all parts have been very carefully coated with a varnish which is impervious to the action of sea water. The hull and floats are absolutely watertight. After the plane is completed, it is given another coat of finishing varnish, which heightens the appearance of the boat.

HULL

The hull with its sharp shiplike bow is provided with two steps and is constructed of hollow box girders. The main frames, some of which are developed as watertight bulkheads, and numerous intermediate frames for bottom reinforcement, which are all connected by four longitudinal girders and one keelson angle bar, form the hull frame upon which the smooth outer metal plating is riveted. The upper parts of the hull can be walked on. There are no inaccessible hollow spaces in the entire construction; all points of intersection and rivets are accessible on both sides.

The boat is divided into so many water-tight compartments by means of bulkheads with water-tight doors with a quick-closing device that the boat retains its buoyancy even though two adjoining compartments are leaking. All the hatches and windows have water-tight closings. The lateral floats insure the requisite stability on the water which may be necessary in the case of leakage. Even in the event of total damage to the floats, the boat is prevented from capsizing, since the ends of the wings have water-tight compartments so that the lives of the passengers are never endangered no matter how serious the damage may be.

All the compartments can be drained through a special bilge device; for drainage on land there are special drain screws in the bottom of each compartment.

The following compartments are in the hull: The collision space or compartment located forward in the bow of the boat is accessible through a water-tight hatch in the roof of the hull. This affords accommodations for the sea equipment, etc., such as anchor lines, etc., as may be necessary.

Behind the collision room is the pilot's cabin, containing two seats, one alongside the other, for the pilots, protected by a wind shield. The pilot's cabin is located in the fuselage in the plane of the propeller.

The location of the seats in the elevated front part of the boat afford the pilots a good view in all directions and are well protected from the spray. Through the double controls it is possible to relieve the pilot through the mechanic or navigator.

All the levers for the motors and cooler regulation, as well as the fuel cocks, fire cocks, and all other apparatus and implements, are located in the pilot's cockpit and can be operated both by the pilot and the mechanic.

All the flight and navigation instruments as well as the instruments necessary for both pilots for the control of the motors are all arranged in front of the pilots' seats so as to be perfectly visible.

The instruments are lighted in groups. The electric system is fed by a wind propeller generator. An electric switchboard, stationary fire extinguisher connected with the motor, and a hand pump complete the installation.

The wireless room is located between the pilot's cockpit and the passenger cabin. Length, 3 feet; width, 4.9 feet. Water-tight side windows and a round hatchway with water-tight cover in the top. Besides the table and the seat for the wireless operator and the wireless equipment this room also contains the auxiliary machinery. This consists of the Bristol starter motor, which by means of special couplings can operate a wireless generator, and also a bilge pump. A door leads into the passenger cabin, which is 22.3 feet long and 5.57

feet wide and high enough for a man to stand. It is divided down the center by a bulkhead with a water-tight door. In the front there is space for four persons and at the rear for six. Entrance is through a hatch in the top at the rear end of the passenger cabin. The latter is finished in a rich, sound-proof wainscoting of leather and fabric. The leather chairs with adjustable backs are fastened to the floor, which is carpeted. At each seat there is a large round water-tight window, which can be easily opened and affords an unobstructed view. The room is lighted by small lamps located at each seat. Nets for luggage, clothes hooks, and strap hangers on the ceiling complete the installation. The lavatory is at the back of the passenger cabin. A water-tight door leads from the passenger room into the freight room, which is accessible through a large hatch in the ceiling, with water-tight closing. Length of this room 4.9 feet and average width 4.3 feet. There is a special device for securing the freight and luggage.

The further equipment of the boat consists of belaying cleats, towing shackle, heating devices, beach trolley, and the bow, stern, and side lights.

CARRYING SURFACES

The wings are fastened to the fuselage by two steel bolts each (which can be easily inspected before each flight) and are braced against the fuselage by two struts each which are also interchangeable and can be easily inspected. Each wing consists of a box-girderlike wing girder with smooth full outer covering, and to complete the form of the wing profile there are metal covered rib boxes suspended in front and at the rear which can be easily folded back and several of which are developed as fuel tanks. The ends of these wing girders are water-tight and are equipped with handholes with water-tight closing. The ailerons have a metal covering and are fastened on the outer end rib box. The wings can be walked on to the end so that it is easy to fill the fuel tanks and control the fastenings of the rib boxes before each flight. The easily accessible rib boxes permit a rapid, easy, and thorough control of the inside of the wings and any repairs that may be necessary can be easily carried out without the entire wing having to be taken off. Any damaged rib boxes can be simply taken off and repaired or be replaced by others. For shipping the entire wing can be disassembled into many small sections which are easy to transport and which can then be reassembled without difficulty at the point of destination.

TAIL UNIT

The entire tail unit is fastened on to the end of the fuselage by means of four steel fittings and steel bolts which are easy to inspect.

The vertical fin and two halves of the tail plane suspended therefrom are braced by struts which can be easily removed, are constructed like the wings of box girders and rib boxes and rudders. Repair work is as easy here as in the case of the wings. By releasing a bolt from each bearing the rudder can be detached and the rudder bearings inspected without the inconvenience of detaching them This makes it easy to control the rudder bearings, rudder, and fins.

CONTROLS

All rudders are operated from the pilot's seat by means of double controls through control bars. There are no wires used. The elevator is operated by two connected rods, turning forward and backwards on a horizontal shaft, containing also the hand wheels for the ailerons. The rudder is operated by a foot pedal. All steering rods are located inside the fuselage and the wings; however, all levers and bearings are accessible and easy to control. The double steering through rods enables the pilot to be relieved during a flight. Furthermore, the machine is easy to control and the steering gear easy to operate so that the pilot is not fatigued even in the case of very long flights in the worst kind of weather.

FLOATS

The floats are arranged on both sides of the fuselage, supported against the wings by struts which can be easily removed. All the bolts of the struts can be inspected without difficulty. The floats are boatlike in form, with sharp stem and with keeled bottom, and are so formed as to create a good starting buoyancy without throwing up any spray, give the plane good diagonal stability, cause very slight resistance in the air, and are subjected to very little danger through a heavy sea. The construction of the floats is similar to that of the fuselage. They are divided by bulkheads into water-tight compartments so that in case of leakage the requisite diagonal stability of the plane will be maintained. The individual compartments are accessible through water-tight handholes. When the airplane is on the water they can be drained from a point located above the water line. On land, drainage is effected through the drainage screws located in the bottom of each section.

MOTOR

The machine is driven by means of two water-cooled Rolls Royce Condor motors of 650 horsepower each, with four-bladed wooden propellers operating as eccentric thrust propellers. The motors are mounted on struts above the wings, and the casing can be easily removed. All struts can easily be detached and all bolts inspected.

In the fuel system the very greatest weight has been laid on safety against fire. All fuel tanks are on the outside of the fuselage, suspended as rib boxes forward and aft on the wing box girders, and are therefore all in the open air, so that in case of any leakages the benzine escapes into the open air and there is no danger of inflammable benzine vapors being formed. No fuel pipes pass through the closed rooms of the fuselage. Furthermore, there are fire extinguishers connected with both motors which can be very easily operated by both pilots. There are also fire cocks in front of each carburetor, which can be operated from the pilot's cabin. Motor pumps feed the fuel from a collector which is connected with all the fuel tanks. The lubricating-oil tanks are located in each motor room behind the motor. The oil cooling is effected by tube coolers arranged on either side of the motor frame. For water cooling there are two large tube coolers suspended underneath the wings, operated by rods from the pilot's cabin. The entire motor control is effected from the pilot's cabin by means of levers and rods which, located inside the fuselage and the wings, pass to the motors through a special strut. The motor is started by means of a Bristol gas starter which is located in the proximity of the pilot and can be set in action very quickly from the pilot's cabin.

NOTE.—In the April "Bulletin" there was given an article on the Rohrback plant, in Copenhagen. This latter, a subsidiary of the Berlin firm, was created to manufacture types of planes, largely military, not permitted in Germany under the terms of the Versailles Treaty.—Ed.

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4. The Hoffmann air mine.

The air mine or torpedo is a small airplane fitted with automatic steering which directs the plane unmanned over the enemy lines. The plane is made to release a considerable number of bombs at regular periods of time. In construction the plane is similar to an ordinary biplane. The wing span is 19.6 feet and the length 11.4. The motor with necessary parts and fuel tank is in the front part. At the location of the pilot seat, there is a box which holds the steering gear, and automatic bomb-releasing gear. The bomb magazine is underneath this box and is so arranged that the center of gravity is not disturbed through the releasing of the bombs. Old Argus motors or other more or less obsolete types should be used for motive power in order to keep the cost of the air torpedoes as low as possible. Such a 50 horsepower motor would give the airplane a speed of over 124 miles an hour. After a certain adjusted period of flight a control clock switches off the steering mechanism and gives the airplane a slow, spiral-like flight. Simultaneously the control clock closes the various currents and in turn and at short regular

periods, to the bomb-locking device, through which the bombs are released either singly or in couples. After the last bomb has been released, the clock switches on, the steering compass is turned, and the airplane returns to its original point of departure where through the agency of the control clock or the effect of electric waves, it is brought to a landing. It is also possible that after the release of the bombs, through the agency of the control clock, a special explosive charge can be made to detonate which will destroy the plane. A small dynamo machine directly coupled to the motor shaft furnishes current for actuating the coupling.

The plane can carry about 1,200 pounds in bombs, and circling around the target will release the bombs at short intervals. For starting off, the flying torpedo is placed on a flat track, or suspended on a wire cable, stretched horizontally and about 250 feet in length. Here the desired direction is then set on the steering compass, the maximum flight altitude on the elevator and the bomb-releasing device, and the motor started. When the motor attains its full number of revolutions the plane is released from its moorings. The automatic bomb-releasing gear consists of the bomb magazine with the lock which can be released electromagnetically and the control clock. The bombs hang in the holes of a pair of plates and are held at their cones through sickel-shaped levers which reduce the size of the holes during the duration of the locking. If the electromagnet is charged with current through the agency of the control clock, it attracts the armature and releases the lock and the bomb is free to fall. Two magnetoes opposite each other receive current at the same time so that two bombs fall together. Therefore the equilibrium of the plane is not destroyed through the release of the bombs.

GREAT BRITAIN

A. NAVAL

1. H. M. S. "Nelson."

There are included in this bulletin three photographs of the *Nelson* taken while that vessel was engaged in her first trials off Portsmouth. After these trials the *Nelson* goes to a dockyard for final fitting out preparatory to joining the Atlantic Fleet this summer. She and the *Rodney* (sister ship, to be completed in the autumn) are to go to the Atlantic rather than to the more important Mediterranean Fleet, presumably so that they can be nearer English dockyards during their first commission. The *Nelson* is of 35,000 tons normal displacement or close to 40,000 tons fully loaded. They develop 45,000 horsepower with geared turbines and eight boilers which

results in 23 knots speed. They carry 4,000 tons of fuel oil. They mount nine 16-inch, 50-caliber guns with an elevation of close to 40°; and twelve 6-inch guns, which are mounted in twin gun turrets with an elevation of close to 70°; and six 4.7-inch antiaircraft guns, four on the boat deck and two on the quarter deck. There is no catapult mounted and no planes are carried. Attention is invited to the numerous control stations and the absence of an armor belt—the armor being inside the outer skin, and especially heavy in the wake of the turrets. The ship is further protected by subdivision and by explosion chambers with water line vents.—Ed.

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2. *British light cruiser "Carlisle."*

Crew's and officers' living quarters were cramped and badly cut up by ventilating sets, uptakes, etc. The skid or upper deck was used as stowage for various articles of spare gear, such as cleaning stages, spare lumber, tarpaulins, etc. Gasoline stowed in 5-gallon tins is also carried in the open on this deck.

Fire control.—A modified Vickers system is in use. The system is self-synchronizing. Two directors for guns are provided—one forward and one aft. They seem to be very rugged and little bothered from vibration. No plotting room is provided and all spotting is done from stations just above the directors. Fire-control receivers at the guns are of the follow-the-pointer type and appear to be very rugged. The boxes are heavy, as are all driving shafts, pinions, etc.

Guns.—The main battery consists of five 6-inch 50-caliber, using separate ammunition. The mounts are fitted with one cylinder to take the shock of recoil and two additional ones which carry the springs to return the gun to battery after firing. These latter are on top of the gun and the recoil cylinder underneath it. The breech plugs are very much like ours except they carry a loading tray which is operated by opening and closing the plug. One very noticeable feature was the abundant use of brass in all fittings of the plug-operating mechanism as well as sight scales, dials, sword arms, etc. Two separate and complete firing circuits connect to the firing lock. In case of failure of one the other is supposed to fire the gun. No control key is furnished the trainer. When firing by director, the gun captain closes a firing switch just above the breech when the gun is loaded and ready. The inference is that pointer and trainer must keep pointers matched at all times. No gas ejection is used. It would appear that it is customary in the British service to never equip guns in the open with any means (artificial) of ejecting waste gases.

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H. M. S. NELSON

Port Quarter View

H. M. S. NELSON

Starboard Quarter View

Magazines.—No ammunition hoists as we know them are provided. Ammunition is hoisted to main deck from magazines by means of a whip. A small electric winch operates a drum for doing this. From main deck, ammunition is carried to a hatch near the breech of the gun and from there whipped up to the top deck by hand. No ready stowage for shells is provided in vicinity of the gun. They contemplate, however, getting up a certain number of shells when engagement is imminent and keeping them in the vicinity of the guns. The magazine for No. 3 gun is located between the firerooms and engine room. Normally no powder is kept in the magazine, as its temperature is too high. Rate of fire in action would be limited by the antiquated method of ammunition supply.

Antiaircraft guns.—Four 3-inch antiaircraft guns are mounted similarly to the arrangement on our C. Ls. The guns are about 35 caliber.

Torpedo tubes and torpedoes.—Eight torpedoes about 21 inches diameter are carried in four twin tubes. These tubes are similar to ours using powder expulsion but appear slightly longer. Two guide slots are provided—one on each side. No heads, either exercise or war, are carried on the torpedoes, so that the forward bulkhead of the air flask is always exposed for inspection—and to the elements. The torpedoes are a postwar Whitehead type and can be adjusted through hand and tool holes in the tube for two speeds. The range at 27 knots is about 15,000 yards.

Range finders.—Two Barr and Stroud 12-foot range finders are mounted in the forward torpedo-control station just above the chart house. The port one is about 1 foot lower than the starboard so that both can be used on either side, ahead, or astern. They were not inclosed but have canvas covers on them.

NOTE.—The "Carlisle" is one of the war-time "C" class cruisers (10 in the class), She is of 4,200 tons and a speed of 29 knots.

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3. *New cruisers.*

[Source: British press]

A good deal of adverse comment has been expressed over the design of the new *County* class cruisers, the fact that they are intended to have a speed of only 31½ knots against the 36 of the two Italian cruisers of the *Trento* type being regarded as a great disadvantage in some circles. Before this view is taken, however, one must remember the radically different purposes for which the two ships are designed. The Italian ships are for work in the Mediterranean only, so that everything is more or less sacrificed to speed, although they must be given credit for having contrived a remarkable amount

on a displacement of 10,000 tons. Both ships are fitted with geared turbine engines supplied with water-tube boilers burning oil fuel, the British ships having a horsepower of 80,000 and the Italians no less than 150,000, the biggest ever installed in a single ship. The *County* cruisers are noteworthy in that they can stow 3,400 tons of oil apiece, which gives them a colossal radius of action; while the oil carried by the *Trento* is very little indeed. Both types have the same main armament, but whereas the *Kent* only carries four 4-inch antiaircraft guns the *Trento* has 16. On the other hand, the Italian ship is armored with only a very short 3-inch belt while the *Kent* has a considerable proportion of her waterline protected by 4-inch steel. The *Trento*, therefore, may be described as an enlarged destroyer, while the *Kent* is a healthy cruiser with excellent sea-keeping qualities, and from the British point of view there is no doubt as to which is the more useful type.

NOTE.—The "County" class of cruisers are of 10,000 tons standard displacement (11 in the class) all building at present. They mount eight 8-inch guns. British press comment regarding their speed has been very adverse.—Ed.

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4. Completion of ships under construction.

Following are the anticipated dates of completion of His Majesty's ships under construction shown in the navy estimates, 1927, as due to be completed during the current financial year, viz: H. M. S. *Nelson*, B. B., summer, 1927; *Rodney*, B. B., end summer or early autumn, 1927; *Kent*, C. L., 10,000 tons, early 1928; *Suffolk*, C. L., 10,000 tons, end, 1927; *Cornwall*, C. L., 10,000 tons, autumn, 1927; *Berwick*, C. L., 10,000 tons, autumn, 1927; *Cumberland*, C. L., 10,000 tons, end 1927; *Adventure*, mine layer cruiser, 7,600 tons, May, 1927; *Amazon*, D. D., May, 1927; *Ambuscade*, D. D., May, 1927; *Oberon*, S. S., May, 1927; *Peterel*, A. X., *Tern*, A. X., *Gannet*, A. X., and *Seamew*, A. X., summer to autumn, 1927.

In addition, the Australian submarines *Oxley* and *Otway* are expected to be completed a few months hence and the Australian cruiser *Australia* in the spring of 1928.

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5. British vessels on China station.

VESSELS NORMALLY ON THE CHINA STATION

Fifth cruiser squadron.—Five cruisers—*Hawkins* (flag), *Carlisle*, *Despatch*, *Durban*, and *Vindictive*.

Four submarine flotilla.—Two depot ships—*Titania* and *Ambrose*. One twin-screw mine sweeper—*Marazion*. Thirteen submarines—*L1*, *2*, *3*, *4*, *5*, *7*, *8*, *9*, *15*, *19*, *20*, *27*, *33* (*L9* is paid off for disposal).

Yangtse flotilla.—Ten gunboats—*Bee*, *Scarab*, *Gnat*, *Cockchafer*, *Woodcock*, *Woodlark*, *Widgeon*, *Teal*, *Cricket*, and *Mantis*.

West River flotilla.—Five gunboats—*Tarantula*, *Cicala*, *Moorhen*, *Robin* and *Moth*.

Twelve miscellaneous craft as follows: Four sloops—*Bluebell*, *Foxglove*, *Hollyhock*, and *Magnolia*. One receiving ship—*Tamar*. One twin screw mine sweeper—*Petersfield*. Two surveying ships—*Iroquois* and *Herald*. Four armed steam vessels for river service, commissioned temporarily for special service—*Faulkner*, *Onslaught*, *Nessus*, and *Kiawo*.

Special disposition—already arrived, en route or under orders to proceed to China station.—Eight cruisers: From East Indies, *Emerald* and *Enterprise;* from Mediterranean, *Caradoc;* first cruiser squadron, Mediterranean, *Frobisher* (flag), *Dauntless*, *Danae*, *Delhi*, and *Dragon*. One cruiser—taking naval reliefs to China—*Yarmouth*. Two flotilla leaders third flotilla—*Keppel;* eighth flotilla—*Bruce*. Eighteen destroyers eighth flotilla (*Bruce*)—*Seraph*, *Serapis*, *Sirdar*, *Somme*, *Sterling*, *Stormcloud*, *Sepoy*, and *Thracian;* third flotilla (*Keppel*)—*Verity*, *Veteran*, *Witherington*, *Wishart*, *Wild Swan*, *Wivern*, *Wolsey*, *Woolston*, *Wanderer*,[1] and *Wolverine*. Two gunboats (from Mediterranean)—*Aphis* and *Ladybird*. One hospital ship (from Malta)—*Maine*. Two aircraft carriers: From Mediterranean, *Hermes;* and from Atlantic fleet, *Argus*.

Nonnaval vessels engaged in transporting troops to China station.—Herminius, *Kildonan Castle*, *Minnesota*, *Kinfauns Castle*, *Megantic*, and *Assaye*.

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6. New Zealand naval policy.

In a lengthy statement as to New Zealand's future naval policy, Mr. Coates, the prime minister, states that the Government has decided, having regard to the very definite views of the New Zealand Naval Board and the British Admiralty and British Government, to provide for the following naval program, which is regarded as that best qualified to meet the position as it exists to-day.

Proposals to this effect will be submitted to Parliament in due course:

1. A sum of £1,000,000 will be paid to the British Government as a contribution toward the cost of the Singapore base. This amount will not be paid in a lump sum but will take the form of annual payments spread over the period between the present date and the date of the completion of the base, which is estimated at seven or eight years.

[1] These two destroyers are ordered to accompany the gunboats *Aphis* and *Ladybird*. They may relieve two destroyers in third flotilla, but all may remain on China station in view of present situation there.

CRUISER PROGRAM

2. A third D class cruiser will not be maintained, but when it is necessary eventually to withdraw the two existing cruisers they will be replaced by two B class cruisers. These ships will have a tonnage of 8,400 tons each, and the estimated annual cost of their maintenance will be £300,000 each, compared with £230,000 for a D class cruiser.

3. During the period between the present time and the date when the B cruisers will be taken over, the necessary alterations in the equipment and plant of the New Zealand naval base required for the upkeep of the B class cruisers will be undertaken.

When the Singapore base is finally completed and New Zealand's contribution on that account is no longer payable, it is definitely intended to resume the policy of devoting the whole of expenditure on naval defense to the New Zealand naval division. The present deviation from that policy is temporary and due entirely to the desirability of assisting in the completion of the Singapore base.

NOTE.—New Zealand now supports two 4,700-ton cruisers—the Dunedin and the Diomede. There is no new construction under way to her order in England. New Zealand assistance at Singapore, both financial and moral, will be very welcome in Great Britain.

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7. *Application of electricity in warships.*

Opportunity was taken to attend the meeting of the South Midland Center of the Institution of Electrical Engineers in Birmingham recently, where a paper on the subject of electricity in warships was read by William McClelland, C. B. O. B. E., who is the director of electrical engineering in the Admiralty. The paper was originally read before the Institution of Electrical Engineers in London. But the meeting of the Institution in Birmingham was the much more important meeting in view of the fact that the Midland districts which were represented included many of the representatives of the manufacturers of electrical equipment for the Admiralty.

The discussion following the paper was very keen and interesting. The discussion largely centered around the question of electric propulsion for naval vessels. Without exception every speaker taking part in the discussion of the paper voiced the opinion that the British Admiralty were much too conservative in their policy not to equip vessels with electric propulsion. The trend of the discussion was to the effect that the Admiralty should equip one vessel at least for a thorough trial of electric propulsion. Criticism was leveled at H. M. S. *Adventure* due to the fact that the generator was of very low speed and the motors were of high speed, necessitating gearing to the propeller shaft. This brought out the point that the *Adventure's* electric propulsion equipment is more or less a makeshift. The Diesel machinery is of the Vickers type, which is used on submarines and is of comparatively low speed. The use of this engine,

therefore, determined practically the electrical equipment that was possible within the space and weight limitations. The impression was received that it was clearly understood the electric propulsion machinery of the *Adventure* was not all that could be desired, but it was as far as the Admiralty was willing to go at this time. It was learned that the electrical machinery of the *Adventure* had behaved exceptionally well on the trials in very heavy weather. The turbine machinery and electrical machinery drive the propeller shaft through the same pinion, the connections with the pinion being made by means of dog clutches on each end. To clutch and declutch either set of machinery necessitates the complete stoppage of the propeller shaft, accomplished by means of brakes, and requires a period of about 10 minutes.

During the discussion certain information was brought out in respect to the failure of the electric-propulsion machinery installed in the *Wulsty Castle.* It was stated that the *Wulsty Castle* was originally equipped with electric propulsion geared to the propeller shaft. Ljindstrom turbines were used. The failure of this installation was entirely due to the steam side, the electrical side performing exactly as designed. The designers miscalculated the steam consumption of the turbines, and the boiler equipment was therefore entirely too low, and it was never possible to get the generator up to its designed capacity. Certain information was also learned in respect to the United Fruit Co.'s electric-driven vessel *La Playa.* This vessel was equipped with Fullagar-Diesel engines as the generator drive. The Fullagar engines proved to be a failure, and are now being removed, and in their place are to be installed Fiat-Diesel engines.

The reading of Mr. McClelland's paper marked an epoch in the procedure of the British Admiralty. It was stated that this was the first paper of its character that the Admiralty has permitted to be read. Mr. McClelland stated that the Admiralty was reluctant to permit the reading of the paper, and it required considerable persuasion to get the necessary permission to present it to the Institution of Electrical Engineers.

NOTE.—Further information on the Diesel-electric system of the "Adventure," together with an elementary wiring diagram of that system, were given in the May Bulletin.—Ed.

B. AERONAUTICAL

1. British air force estimates 1927–28.

The gross estimates represent the total estimated expenditures, whereas the net estimates represent expenditures directly chargeable to the air ministry. The difference between the gross and the net

estimates represent the "appropriations in aid" or that part of the gross estimates which is supplied by the Colonial Office and the Admiralty. The net estimate for 1927 is £450,000 less than for 1926, and that the "appropriations in aid" for 1927 is £428,100 less than 1926, or a gross reduction of £878,100.

It is important to note that the squadron strength of the Royal Air Force will be increased by the equivalent of six squadrons in 1927, of which two and one-half squadrons (five new flights) will be added for the fleet air arm, primarily for the aircraft carrier *Courageous*, due to be commissioned in the course of the financial year 1927.

As to personnel, the maximum number which may be borne on any one day during the financial year 1927 is 33,000, a reduction of 2,500 from the 1926 allowance, and distributed as follows:

Commissioned officers	100
Warrant officers	25
Noncommissioned officers	100
Aircraft men	2,275

The enlisted Indian personnel in Iraq will be decreased by 300, but this figure will be taken up by an increase of 300 in the apprentices, so that the net reduction in total personnel will remain at 2,500 as stated.

Research and technical development comes in for a net increase of £128,000 as compared with 1926, the major part of which is for research and development of airplanes and engines. The program for the construction of new experimental aircraft provides for 11 types and continued investigation of the autogyro type. Similarly, provision is made for the purchase of a number of engines in the advanced stage of development for installation in experimental aircraft.

The airship estimates show an increase of £60,000 over those of 1926, again indicating that the completion of the *R–100* and the *R–101* is to be expedited.

One of the largest reductions appears under the heading of Public Works and amounts to some £447,000. Nevertheless, it is important to note that the development of the air base at Singapore will require £83,000 in 1927, and a similar work at Malta will require £30,000 during the same period. The importance of meteorology in both military and civil aviation is recognized by an increase of £8,000 over last year's estimate. This seems primarily to be for the development in connection with airships and for the commissioning of the tenth meteorological station at Bircham, Newton.

NOTE.—As the air force is a separate department in Great Britain, the air estimates are entirely separate from the army or navy estimates. An analysis of the naval estimates was given in the May Bulletin.—Ed.

2. *British aero engines.*

[Source: British press]

The Armstrong-Siddeley series of radial air-cooled engines are among the most interesting of British aero engines. The keynote of their design and manufacture is the standardization of as many parts as possible which are common to all the series of engines, thus reducing the number of spares which must be carried in a unit. At the same time the tolerances have been carefully worked out to reduce to a minimum the work of replacement and eliminate to a great extent the use of highly specialized personnel.

These, it will readily be seen, are important considerations from the point of view of commercial operation, but they are even more vital from the military standpoint, and it is a noteworthy fact that there are more Armstrong-Siddeley air-cooled engines in use in the Royal Air Force than any other radial type. In fact, until the recent flights of Sir Alan Cobham the Jaguar engine of 385 horsepower had not been associated very much with civilian work, but with the advent of the three-engined Argosy 20-seater passenger machine this power plant is now being extensively and intensively utilized for air transport work. It came most into prominence through the world flights of Sir Alan Cobham in 1926, and it is worth recording that on the first flight to Cape Town the Jaguar engine ran 16,000 miles, and the engine was reinstalled in the aeroplane for the Australian flight and ran another 28,000 miles, making a total of 44,000 miles. Sir Alan Cobham has publicly expressed his satisfaction with the service of the engine throughout his long flights, which on the return from Australia was pulling a load of over two tons. The Gloster Grebe and the Siskin, two of the standard single-seater fighters of the Royal Air Force, are fitted with Jaguar engines, and the Hawker Danecock now in use by the Danish naval air service relies upon the same power plant, which has also been fitted in numerous foreign machines.

STANDARDIZATION

The Jaguar engine is distinctive in many respects. In the first place its power impulses are divided among 14 cylinders arranged in two banks of seven around a double-throw crankshaft, thus securing a more even torque and also reducing the overall diameter of the engine. This engine develops 385 to 425 horsepower, and the principle of mass-production has been applied so that two of the other engines in production are based upon the same main units. These are the Lynx, which is in effect half the Jaguar engine and consists of a

single bank of seven cylinders arranged radially round the crankcase and developing 180 to 200 horsepower, and the Mongoose, which is made up of five cylinders of the same stroke and bore developing 130 horsepower. The Genet, consisting of five cylinders and developing 65 to 75 horsepower, follows the same general principles, but is a much smaller engine.

The extent to which interchangeability has been developed is shown by the fact that cylinders, valves, valve mechanism, timing gear, front housing, propeller boss, oil pump and filters, engine bearer plate, piston assembly, and connecting rods are all interchangeable in the first three engines as a result of the application of accurate machine methods in conjunction with efficient tooling equipment. The more even torque secured by the greater number of cylinders in the Jaguar engine has already been referred to, but other special features claimed are that by making the cylinder heads in one piece radiation is assisted and freedom from distortion secured, while the provision of a fan in the induction system makes for a very efficient and economic distribution of the gas and enables one carburetor only to be used to supply all the cylinders. The two cranks on the shaft are set at 180°, and one bank of seven cylinders is slightly staggered in relation to the other to secure evenness of air flow and cooling. Each set of seven pistons drives the crank pin through one master and six auxiliary rods, and the engine, with a compression ratio of 5 to 1, gives from 385 to 425 horsepower at normal revolutions of 1,700 per minute for a petrol consumption of 0.56 pint per horsepower-hour, and an oil consumption of 0.025 pint per horsepower-hour with a dry weight of 770 pounds. The Lynx gives its 180 to 210 horsepower at 1,620 revolutions per minute for a weight of 480 pounds; the Mongoose 125 horsepower for a weight of 340 pounds; and the Genet, which is slightly less economical in petrol and oil consumption, weighs 168 pounds.

The engine body of the Jaguar and also the Lynx and Mongoose engines, is made up very conveniently of three parts—the crankcase proper, which carries the cylinders, the tappet guides, and engine bearer flange; the back cover, which carries the crankshaft rear bearing and induction fan bearing; and the front cover, which takes the crankshaft journal and thrust bearings and auxiliary drives for the cams, gas starter, and oil pumps. The cylinder assembly is composed of the head, barrel, and lock nut, the head being an aluminum casting into which are screwed, when hot, expanded bronze alloy valve seats, while the cylinder barrel, machined from a steel forging, is designed so as to butt up against a shoulder in the cylinder head and make a gas-tight joint. The cylinder assembly is screwed into a light steel adapter, which is flanged and pinned into the crankcase and permits a ready and accurate seating of the cylinder in the

crankcase. There are numerous other special features in the arrangement of the working parts of the engine, to which reference can not be made here, but attention may be drawn to the induction fan, which serves to secure a better and more evenly distributed mixture in the standard engine.

RAPID PRODUCTION

It is evident throughout the design of the Jaguar series that prime importance has been attached to rapid production without, of course, sacrifice of reliability, and there is little doubt that in a national emergency the Armstrong-Whitworth factory is so organized that the Jaguar and kindred engines could be turned out in large numbers with the minimum of delay, and, what is equally important, repairs and replacements could be made under field-service conditions with the minimum of man hours. The Jaguar may be described as a useful combination of high efficiency and rapid production. These factors, with the interchangeability of so many of the parts, place it in an exceptionally strong position from a war point of view.

Like every other engine, the Jaguar has been evolved as the result of development work spread over six or seven years, with the power gradually creeping up to its present figure. The original engine passed its type test early in 1920. and was then rated at 325 break horsepower at 1,500 revolutions per minute, with a maximum of 365 horsepower at 1,650 revolutions per minute. The next step was to raise the horsepower to 360, at 1,620 revolutions per minute, with a maximum of 400 break horsepower at 1,780 revolutions per minute. To-day, as has been stated, the standard engine is rated at 385 break horsepower at 1,700 revolutions per minute, and at maximum revolutions of 1,870 gives well over 435 break horsepower.

Contemporaneously with the later stages of development has come much valuable work in supercharging, using a gear-driven type, and with the same normal and maximum figures the supercharged unit can maintain its rated horsepower up to approximately 8,000 feet, making it a very useful power unit without many of the complications associated with supercharging. The effect of this supercharging is that the engine would develop 500 horsepower at 1,700 revolutions per minute if it were permissible to open out at ground level.

C. MISCELLANEOUS

1. High frequency beam transmitter.

A demonstration of the invention of R. C. Galletti for the propagation of radio waves, a ray, or beam, has been witnessed.

Mr. Galletti now has his device located at one end of a large hangar, approximately 80 by 550 feet. The apparatus is of the ellip-

tical cage type, the major axis of the elliptical section of the cage being 6 feet and the length of the cage 6 feet. The demonstration was practically the same as the laboratory demonstration, and there seems to be no marked improvements in the apparatus except to surround it by a screen of "chicken wire." The purpose of the wire screen is to eliminate the effects of body induction caused by individuals moving around the apparatus to which, Mr. Galletti states, and demonstrated, the apparatus was peculiarly sensitive.

Queries that were put to Mr. Galletti to clarify certain inconsistencies in the performance of the receiving galvanometer were met with by the reply that the machine was not in exact tune due to the shape, size, and position of certain wire that he had had to use and that he did not wish to endeavor to improve the performance.

The apparatus consists of a cage of true elliptical section, the perimeter of the cage being composed of 48 composition tubes, about ⅜-inch diameter, equally spaced and held in position by four equidistant wooden frames. The wooden frames had been impregnated with an oil or wax to increase their insulating property. The tubes were exactly 6 feet 8 inches long, but were in two sections, the break between the two ends of the tubes being joined by a brass rod fitted into each tube. Mr. Galletti stated that the break in the tubes was for the purpose of easy installation and for the purpose of adjusting the tubes to the exact length of 6 feet 8 inches and, also, to allow easy access to the oscillator. There was a brass rod, 6 feet 8 inches long, placed exactly in the lower foci of the elliptical cage running from end to end. This rod is the vibrating element for the propagation of the beam. A similar rod is located about two inches below the rod in the foci and connected to it electrically by frets or turns of wire and tinfoil. The connections between the two rods were made at different points, not exactly determined, the lower rod being connected directly to a two-valve oscillator. A current of approximately 500 volts impressed upon the valve plates was supplied from a motor generating set. The filament current was supplied from a battery.

The entire apparatus was slung from a beam overhead in such a manner that it could be rotated to any fixed point. In addition to the transmitter Mr. Galletti had a duplicate cage, except that its elements were composed of copper wires, not connected with the 600-volt current, which he called a receiver. He had a receiving galvanometer in connection with the receiver.

The transmitter was located at point A. At points B and C small crystal receivers connected to the galvanometers were located. At point D was located the receiver mentioned above.

The demonstration consisted of turning the transmitter at A directly on the crystal receiver at C and moving it from side to

side. The galvanometer was markedly affected, moving from the position of zero to a certain definite spot on the scale. It was noted, however, that the galvanometer read to the left of zero when the ray was pointed slightly to one side of the crystal receiver, and read to the other side of the receiver when pointed to the other position. Mr. Galletti was asked to explain why the galvanometer did not return to zero when the ray passed from the immediate vicinity of the receiver. He explained by saying that this was due to a certain "wash" which surrounded the ray as it passed through the atmosphere. Mr. Galletti had a screen of tinfoil which he placed over the end of the cage that was directly away from the galvanometer. By placing this screen at a different position to the rear of the transmitter he showed that he could get a double reading on the galvanometer, explaining that the ray being emitted from the back end of the transmitter was then reflected into the transmitter again, then reemitted, doubling the energy of the single ray. He claims that this shows the 100 per cent efficiency of the apparatus by the fact that the ray reflected by the screen is picked up by the transmitter and then reemitted and that the ray is not simply reflected from the screen through the cage. He demonstrated this point by directing the transmitter at the duplicate receiver at D, calling attention to the fact that the galvanometer connected with this receiver at C recorded the full effect of the wave and that the wave did not simply pass through the cage without being picked up. The transmitter was then directed to the end of the hangar, which was a corrugated metal bulkhead 510 feet distant. It was noted that when the transmitter was directed at the wall both galvanometers were agitated. The maximum movement of both galvanometers was observed when the beam was pointed at the point on the end of the hangar which would cause direct reflection to one or the other of the galvanometers, but there was continual agitation of the galvanometers during the time the beam was being thrown on the end of the building. Mr. Galletti explained the idiosyncrasies in the performances of the galvanometers by pointing out that there was a considerable amount of metal piping and electric conduit attached to the many pillars in the building, and the reflection of the "wash" surrounding the ray from these metal conductors caused a great amount of stray reflected waves in the hangar.

The experiment was interesting in demonstrating that there was some effect emitted by Mr. Galletti's transmitter, but very inclusive in respect to the definite limits of the beam as claimed by the inventor. There was no way to measure or estimate the strength of the emitted energy, to explore its form, or to measure the wave length emitted. Mr. Galletti stated that all these things could be done, or had been done.

2. Beam wireless tests in Australia.

The Australian beam wireless stations at Ballan and Rockbank, Victoria, and the English stations at Grimsby and Skegness have been completed.

During the seven days, March 8 to March 14, 1927, an official test, under working conditions, was conducted by the officials of the Amalgamated Wireless Co., of Australia. Similarly, during that period a return test from England to Australia was conducted.

Communications at speeds up to 325 words per minute in each direction simultaneously were attained. The period of communication and capacity of words far exceeded the guaranty given by the Marconi company, which made the installations.

The tests demonstrated that a wireless system operating over a distance of 12,000 miles is capable of attaining considerably higher transmission speeds than the most perfect land-line systems working over very much shorter distances. So far the maximum speed attained with the beam system has been 325 words per minute, which is almost double the speed considered satisfactory on truck telegraph services of average length. The actual transmitting and receiving equipment associated with the beam system is capable of a maximum speed of 400 words per minute, and although the wireless section of the service has not yet been capable of working at the maximum speed of the associated apparatus, there is every reason to expect that development in the next few months will make the capacity of the service equal the speed at which the signaling apparatus can be wrked. This seems so assured that attempts are already being made to design automatic transmitting and receiving equipment capable of a speed of 1,000 words per minute.

A striking feature of the test was the long period daily during which communication could be maintained. Although the specifications for the service prescribed a period of communication of only 7 hours daily, the test showed that signals could be received throughout the 24 hours, but for a period of 3 or 4 hours about midday fading occurred, which made commercial operation unsatisfactory. For the remainder of the 24 hours commercial communication at high speed was easily accomplished. The short period of each day in which signaling is interrupted by fading is likely to vary considerably at different times of the year.

The efficiency of the beam system, as compared with earlier proposals for superpower circle stations, is illustrated by the fact that under the original agreement between the Commonwealth Government and the Amalgamated Wireless Co., a traffic capacity of 14,400 words a day each way was guaranteed, while in the test the beam stations demonstrated a traffic capacity of from 130,000 to 170,000

words a day in each direction. The speed guaranteed for superpower circle stations under the original agreement was a minimum of 20 words a minute each way, but, as has been stated elsewhere, the beam system is capable of working in both directions simultaneously at a speed from 100 words a minute up to and exceeding 325 words a minute.

The outstanding feature of the test is the definite indication that the service will be almost instantaneous. On systems where the transmission rate is lower much traffic accumulates in busy periods, and a great deal of this is cleared at deferred rates at times when fewer messages are being received for transmission. Although it is understood that provision will be made for acceptance of radiotelegrams for transmission at deferred rates, it is probable that there will be but very little more delay in sending these telegrams than in connection with urgent messages, because high transmitting speeds will prevent the accumulation of traffic.

Situated on a plateau nearly 2,000 feet above the level of the sea, the station is ideally placed from a technical viewpoint. The site was chosen to render the station reasonably safe from attack in war time.

The Ballan station consists of two separate transmitters, one of which works with Great Britain, and the other, which is not yet completed, will work with Canada. Although the two stations are independent from each other, much of the apparatus for one of the stations can be used to work the other in case of a breakdown. Power to operate the stations is generated by three crude-oil engines, each of which develops 160 horsepower. The engines drive electric generators which supply the current for the transmitting equipment. There is one generating unit and one set of subsidiary electrical apparatus, which includes a system of generators and converters which furnish current at a pressure of 10,000 volts for operating the main transmitting valves of each of the two stations, the third complete unit of generating machinery being available as a spare.

The engine room and power plant at the station is by far the largest portion of the building, and the transmitter proper is very compact. There are two high-powered transmitting valves forming the basis of the apparatus which energizes the aerial system. The valves are each about 2 feet long, and instead of being composed of glass they are almost entirely of copper. The copper portion of the valve really corresponds to the plate in a receiving valve, but the valves will handle so much power that the plate would normally be heated to melting point after a few minutes' operation. To prevent the possibility of this happening the plate is made hollow in the form of a jacket, and oil is kept circulating through this jacket, and thence passing to a radiator, in which it is cooled during

the time the station is working. Each of the two valves is capable of handling the electrical equivalent of 26 horsepower.

Another of the main features of the transmitter is the care which has been taken to prevent any possibility of variation of the wave length. The wave length of the transmitter is between 25 and 26 meters. This is fixed by a carefully adjusted valve circuit, which is set up inside a copper box, the electrical circuit for which produces electric oscillations of the correct frequency to generate the desired wave length. These oscillations are then amplified by a series of valves. The output from these two valves is conveyed by two copper conductors, one of which is in the form of a pipe surrounding the other, to the aerial system. The aerial itself consists of a screen of fine copper wire supported from three lattice steel masts, each 250 feet in height, and carrying at their tops a boom 90 feet in length. The special spacing of the wires in this screen is responsible for the generation of the wireless beam, and the supression of powerful radiators in any other but the desired direction. The aerial is so arranged that signals can be sent to Great Britain, either in a northwesterly direction over the Indian Ocean and portions of Africa, Asia, and Europe, or else in a southeasterly direction toward the South Pole, and then toward the north on the opposite side of the earth.

The receiving apparatus, which is installed at the station at Rockbank, also incorporates many interesting features. The aerial system used in the beam receiver is exactly similar to that employed in the transmitter, but it is necessary to separate the receiver from the transmitter by a considerable distance, in order to permit the reception of messages while the transmitter is in operation. The receiver itself employs 24 valves, some of which are specially designed for beam work.

The beam aerial system in itself is a valuable safeguard against interference, because it will respond strongly only to signals coming in the proper direction A special filter system in the receiver entirely eliminates atmospheric disturbances.

Both the transmitter and receiver are controlled from the offices of the Amalgamated Wireless in Queen Street, Melbourne. The transmitting apparatus is not very different from the Wheatstone apparatus used in ordinary telegraph work in Australia. The messages are "typed" out on a machine resembling a typewriter, which, however, punches holes in a paper tape. The perforated tape is then fed through the transmitter at high speed. The receiver differs considerably from a post office instrument. In the ordinary postal form of automatic receiver the signals are written in dots and dashes on a paper tape. In the beam receiver a special stylus traces the signals in the form of a wavy line on the paper tape. The

waves in this line are readily translated by experts into the ordinary characters of the Morse code, and the messages can be copied from it and typed out ready for delivery, at the rate of 60 words per minute.

Feeder stations are to be established in each of the other capital cities communicating direct with the main trunk station, and, as the relay will be automatic, there should be little delay compared with the handling of messages originating in Melbourne itself. As the system develops, there will be probably additional feeder stations linking up other remote parts of the Commonwealth.

As in other countries the transmission and reception will actually be operated from central city offices by distant control. The company has acquired a spacious building in a central position in the city where the high speed automatic telegraph equipment is installed, and there the operators will work over the beam system direct to London, and also to the feeder stations in the other cities.

The following comparisons show some of the advantages of the beam station over the high power station:

Item	High power	Beam
Cost	£487,000	£119,000
Masts, number of	20	5
Masts, height, feet	800	250
Masts, distance apart, feet	1,600	650
Aerial, height, feet	750	200
Aerial, length	[1] 6½	[2] 1,300
Power (kilowatts)	750	35
Wave length, meters	24,000	25–26
Speed, words per minute	20	325
Guaranteed capacity, words per annum	8,640,000	51,840,000

[1] Miles. [2] Feet.

All parties connected with the erection, installation, and transmission are very enthusiastic over the result of the recent tests and of the possibilities of further expansion in the near future. The work of rigging the three towers that will transmit to Canada is going ahead and it is expected that within two months the station will be completed and ready for its seven-day test with Montreal.

NOTE.—Beam radio has been in service between Grimsby and Montreal for some time.—Ed.

ITALY

A. NAVAL

1. Italian light cruiser "Trieste."

The *Trieste* was reported to be within about six months of completion. The hull is practically complete. It was stated that when launched the ship would be in all respects complete except for guns

and fire control. It was said to be of 10,000 tons, and this appeared to be substantially correct.

The hull is of the flush-deck type and is not cut away aft as in our light cruisers. The forward turrets are farther aft and the after turrets farther forward than in our light cruisers. Officers' quarters were said to be aft. Hawse pipes for anchors are similar to our chocks for handling lines. Anchors on the model were of the patent anchor type with the shank hauled in on the deck of the forecastle and only the flukes projecting over the side. There are to be two starboard and one port bower anchors.

The hull is built up with the bulge type of under-water section forward. Bilge keels are fitted. It was designed to have a mean draft of 20 feet. The rudder is large and is reported to have one thirty-fifth of the area of one side of the ship under water. The horsepower was reported to be 125,000 to 150,000 but this is very doubtful, the reasons for this being explained below. The reported speed of 36 knots is also open to doubt. Shafting is already installed for four propellers, these apparently being slightly closer to the ship than in our light cruisers.

There are to be two elliptical stacks. The uptake casings project well above the deck, sloping on all sides toward the stacks. The difference in size of the forward and after uptake casings is readily apparent, the forward being much larger. The forward stack is in place, but the after stack has not been installed.

Two turrets are forward and two turrets aft, turrets Nos. 2 and 3 overlooking turrets 1 and 4. The guns are 8 inches. Many smaller guns arranged in pairs in single mountings without shields were arranged around the upper decks, but the location and number of these has not been definitely decided upon. They appeared to be about 5-inch, judging from comparison with the turret guns. The guns were fitted in mounts allowing for high elevation. A great many smaller guns, probably 2-inch, are to be provided, but the number and location of these has not been decided. There will be about 32 guns in all, 8 in turrets, about 14 secondary battery, and the remainder antiaircraft.

The conning tower appeared to have 5 to 6 inches of armor, and the fire-control tower is believed to be located on top of the conning tower and has about 2½ to 3 inches of armor. The armored tube connecting the conning tower and central station appeared to have about three inches of armor. A model of the ship showed two tripod masts, the foremost being considerably heavier than the mainmast. A fire-control station was shown at the top of the foremast, this being a cylinder apparently entirely closed.

The model was not fitted with mine tracks nor mine-laying platform, and as the stern of the model was faired away, it is believed that no provision is made for mine laying.

A fixed catapult is on the forecastle, consisting of two tracks running on the center line forward of No. 1 turret. Hatches were in the deck forward of No. 1 turret for lowering planes. A folding tripod is mounted on the after end of No. 1 turret. This plumbs the hatches and the catapult. Planes are to be used which have wings folding back alongside the fuselage. Compressed air is reported to be used for operation of the catapult. Planes are to be hoisted on board by the boat boom, but no tracks were fitted on the model for moving planes from the vicinity of the boat boom abaft the bridge to the vicinity of the catapult.

The hull shows openings for four fixed torpedo tubes above water on each side, one pair forward and one pair abaft the midship section. Pairs are about 40 feet apart. Tubes were fitted to be withdrawn side by side into the second deck level. A square cargo port is provided abaft these openings.

The main propelling machinery is to consist of four independent units, each unit consisting of a high and low pressure turbine. These are arranged with two units in each of two engine rooms. There are to be 12 express type boilers ararnged 4 each in 3 firerooms. The general plan consists of two firerooms forward connecting to No. 1 stack, then one engine room, then another fireroom connecting to No. 2 stack, and then another engine room.

Each machinery unit is to have an independent condensing plant. Condensers are double flow. Circulating pumps are turbine driven through reduction gearing. Scoops are not fitted. High-pressure turbines consist of a seven-stage Parsons turbine fitted with a Curtis impulse wheel having three rows of moving blades forward of the Parsons blading. The impulse wheel is intended for use only when operating at cruising speeds up to about 22 knots. It is believed that the first stage casing complete, including nozzles and nozzle blocks, shell, and fixed blading, is to be inserted and held by studs or bolts to the forward head and supported by raised points in the periphery of the forward part of the H. P. casing. By-pass connections are fitted in the valves to the various stages, and while these were not in place and their purpose could not be ascertained accurately, it is believed that these probably are intended to permit by-passing a part of the steam around the first stages of the reaction blading for use at full power.

The low-pressure turbines are of the double-flow type and very similar to the low-pressure turbines on our light cruisers. Star couplings are fitted between turbine shafts and reduction-gear pin-

ions. The main thrusts are of English design known as the Mitchell thrust. It is very much like the Kinksbury thrust except that the tilting ring is replaced by a spherically rounded surface on the back of the block holding the thrust blocks. V-shaped rings fit over this rounded surface and into the clutch casing. The backing turbines are installed in one end of the low-pressure casing. The steam piping to astern turbines is fitted with a large valve apparently the astern throttle, located directly on the astern casing.

Reduction gears are very similar to the reduction gears on our light cruisers. Three bearings are provided for each pinion. Gear teeth are considerably larger, but the main gear and pinions appeared to be about the same diameter as installed on our light cruisers.

The propeller struts appear to be castings. The shafting appears to be close to the ship's side, and it seems probable that small propellers will be used. The shafting is certainly no larger, and, if anything, is slightly smaller than the tail shafting of our light cruisers.

Several valves were observed which had the connection for steam piping fitted with a spherical body for use as a ball-and-socket joint. The steam piping connecting to these valves was in a short section having two rounded spherical surfaces, placed 4 or 5 inches apart. The valve body was spherical inside and fitted with copper rings of graduated sizes to fit the rounded surface of steam piping. The necessity for these joints is not apparent.

Main condensers are double flow. Main circulating pumps are turbine driven through reduction gears. Radojets of the Wheeler Le Blanc two-stage type without intercoolers are to be installed. Condensate pumps are turbine-driven centrifugal pumps.

Air pumps for dynamo and auxiliary condensing pumps are of the Weir wet and dry cylinder type. Circulating pumps are turbine driven. Condensers are double flow.

Boilers are of the small tube express type, designed to operate at 280 pounds gauge with 100° superheat. They are a modified Thorncroft and a modified Yarrow. The modification consists of the elimination of downcomers. They were not seen. They are to be arranged in three firerooms. Fuel-oil pumps are of British manufactuer and are reciprocating.

There were several small hatch combings located alongside the uptake casings on the deck of the model. These appeared to be intended for forced draft blowers.

Ejectors are fitted for ridding various compartments of water, in addition to a great many additional pumps installed for the same purpose. Pumps are installed in nearly all underwater compartments.

Aluminum is used wherever practicable. The upper half of gear casings are of aluminum, and many aluminum pipes were observed. These were stated to be for fuel oil.

There are five direct current generators, 150-kilowatt, 220-volt. Three of these are to be turbine driven and two are to be Diesel engine driven. The latter are for use in port.

All essential deck machinery is electrically driven. In this respect the *Trieste* appears to be much better designed than our light cruisers. The anchor engine and deck winches are electrically operated. The steering engine is of the type built by Brown Bros., of Liverpool, and is electric hydraulic. There are four large cylinders placed so that two are opposed and operate on either end of solid rams, connected at their middle points by a transverse member, which in turn is connected by connecting rods to the rudder head. Two steering engines are fitted, either of which is sufficient for full power.

SUMMARY

It is my opinion that the *Trieste* will not be capable of developing a speed of 36 knots, as reported, and that the power developed by the main engines will be very little if at all greater than that developed by the main engines of our own light cruisers. It is estimated that the maximum speed will not exceed 33 knots.

The *Trieste* appears to be well designed as regards deck machinery and boat stowage and in this respect is superior to our light cruisers. Three steam launches and one motor launch are stowed side by side on skids above the main deck abaft the bridge. Other boats are stowed abaft the two outer boats. All boats are handled by a large boom fitted amidships. This eliminates all superfluous boat davits and leaves the upper deck clear. Electric winches are provided. An electric anchor engine is provided and is considered an improvement over the installation on our light cruisers.

A comparison of the ship and model with the cut shown on page 232 of Janes' Fighting Ships, 1926, shows the following differences:

(*a*) Forecastle and quarterdeck are proportionally longer than shown on the cut, the stacks, bridge, etc., occupying proportionally less space than shown in the cut.

(*b*) The catapult shown between the stacks is in error.

(*c*) The shape of the forward fire-control station on the foremast is cylindrical and about as shown in the upper part of the mast structure in the print. Instead of the enlarged construction below this cylinder there is an inverted truncated cone considerably smaller than the fire-control station, and decreasing to the size of the vertical leg of the mast.

(*d*) The closed deck house abaft No. 1 stack and the structure forward of No. 3 turret were not shown on the model.

(*e*) Broadside guns shown as installed in gun shields in the print are to be mounted in pairs without shields.

(*f*) Torpedo-tube openings and cargo ports are not shown in the print.

The elimination of the low fantail is considered an improvement, but it is questionable whether this compensated for the elimination of mine-laying equipment.

NOTE.—Italy is now building her first 10,000-ton cruisers, the "Trieste" and the "Trento." She is projecting additional vessels of this class.—Ed.

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2. *Royal shipyard, Castellamare di Stabia.*

The Royal Shipyards are located at Castellamare, about 17 miles by train in a southeasterly direction along the coast from Naples. The shipyards have a total of about 1,500 employees. On one shipway the cadet training ship *Colombo* was under construction. This vessel of steel construction is about 3,000 tons displacement, single screw, square rigged on the fore, main, and mizzen masts, with auxiliary Diesel engine, manufactured by Ansaldo, to give the vessel a speed of 12 knots. The progress on the vessel indicated that she could be launched in the next month or two. No special constructional features of interest in connection with this vessel were noted.

The oil tanker *Torricio* was under construction on the second building ways. This vessel is of steel construction built on the *Isherwood* system, of 11,700 tons displacement. Diesel engined by Ansaldo with a designed speed stated to be 14 knots. The cargo oil capacity is about 8,000 tons. The vessel will be soon ready for launching. It was noted that the vessel is bulged throughout practically its full length with bulge protection of the Pugliese design, similar to the installation on the tanker *Bronzero*.

This system generally involves the installation of a single fore and aft pipe in the extreme outboard compartment, port and starboard, formed by the plating of the bulge and the hull plating proper, which is curved in and down. The pipe on the *Torricio* has a diameter stated to be about 10 feet and is made of very light steel plating stiffened internally about every 10 feet and supported about every 30 feet. Discussion of this form of protection has indicated that there is little probability that it will be adopted for combatant vessels or little likelihood that it will be installed in additional tankers owing to the decreased cargo-carrying capacity that is involved by its installation for a given displacement.

An opportunity was afforded to visit the ropewalk also in the Royal Shipyard. It is understood that this ropewalk manufactures

all hemp rope used by the Italian Navy and other Government departments. The ropewalk proper was contained in a building estimated to be about 1,000 feet long. The plant seemed to be well equipped with machinery for processing the hemp fiber and for manufacturing it into rope. The capacity of the plant was stated to be 5 tons of rope per 8-hour day—now producing about 3 tons per day. The fiber in principal use is a locally grown hemp known as Canapa. Some manila hemp is imported for specific uses.

The mine layer *Durazzo* was also observed lying in the basin. This class, consisting of the *Buccari*, *Fasana*, *Durazzo*, and *Pelagosa*, were all built at Castellamare and are vessels of approximately 600 tons, 10 knots speed, Diesel engined by Ansaldo, intended for local operation near a base. The mines are laid from tracks through three oblong stern ports. The *Durazzo* carries 205 Elia mines.

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3. Royal Arsenal and Ansaldo San Giorgio Co., Spezia.

ROYAL ARSENAL

This dockyard is engaged in general repair and refit of vessels of the Italian Navy and in the conduct of investigational and development work such as the trial and tests of new catapults—ship protection against underwater explosions and similar design problems. The experimental model tank for the testing of ship models is also located here. In connection with this tank, the visitors were shown a self-propelled model of the cruiser *Trieste* about 20 feet in length lying alongside the dock. This model had been built to check the results obtained on the small-scale models run in the tank. This large-scale model is given speed and power runs over a measured distance in the harbor with propellers of different designs, etc., and it was considered very useful in developing the design of the *Trieste* and *Trento*.

The arsenal has seven graving docks. The battleship *Conte di Cavour* was in dock, and one air catapult was noted located on the port side of the forecastle leading forward, with the air banks for its operation located on the shelf of the main deck forward, where the forecastle deck is cut back to clear the fire forward of the forward 4.7-inch secondary guns.

The *Quarto*, scout cruiser of 3,280 tons displacement, was also noted in dock. A feature of this vessel was the king post and jib crane on port side of quarter-deck immediately aft of house for hoisting seaplane to the quarter-deck. Smoke-producing apparatus was noted on the starboard side aft.

The *Sella*, destroyer of 1,150 tons, was also in dock. One gun was noted forward and two aft. Smoke-producing apparatus also fitted on *Sella* aft; two triple torpedo tubes amidships.

In the mold loft a model of the *Miraglia*, a 5,000-ton cargo vessel being converted at the Royal Arsenal to an aircraft carrier, was noted. This vessel is being fitted with a catapult forward and one aft on the center line. There is no flying-off deck, although handling space in vicinity of the catapults is provided, connected by a walking flat or passage. Elevators to the forward and after handling spaces are indicated to bring planes from the hangar spaces forward and aft on the main deck. Large port openings in the side of the vessel are provided for each of the two hangar spaces with a crane provided overhead to hoist planes up and into the hangars. About 26 planes are to be carried. A Sperry stabilizer will be fitted on this vessel to facilitate the handling of planes.

SAN GIORGIO ANSALDO

This firm specializes in the construction of submarines. At present, four submarines of the *Ballila* class are under construction: also one of the same general design for the Brazilian Government. The *Ballila* had been launched and was alongside the fitting-out pier. Two others were well along so far as hull work was concerned, and it is understood will be launched in May (one Italian and one Brazilian), another will be launched in September, and the last one at the end of the year. The last boat was in frame only. This design has four torpedo tubes forward and two aft, with a third tube aft just below the deck line, said to be for launching mines. The vessel will carry 25 mines of special design. Two boats are carried in the superstructure amidships; main-battery guns will be one 4.7-inch forward and one 4.7-inch aft, with elevation of 90°. The contract price of the vessel complete with ordnance is approximately 32,000,000 lira, or, at 22 lira to the dollar, approximately $1,450,000.

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4. Royal Naval Academy, Leghorn.

About 450 cadets are in attendance, the course at the Royal Naval Academy being five years. It is now proposed to supply all engineers and constructors from among graduates of the naval academy. Instruction is also given at the academy to 60 reserve officers of the merchant marine (two-year course) and postgraduate instruction to 90 regular officers, of which 25 were paymasters and surgeons.

The mess hall for the cadets was a large room, well lighted, clean, and cheerful, filled with long tables for seating the cadets. The

cadets are bunked in dormitories, each cadet having an iron bed, locker, and chair. In a separate room adjoining, each cadet had an individual washbasin with shelf for toilet articles; bathing facilities in another adjacent room, with a place for each cadet's towel.

The recitation rooms are arranged to accommodate about 25 cadets each year, seats being raised for a good view of the lecturer's platform. Civilian instructors are maintained for all mathematical courses and Italian officers for instructors in practical and strictly professional subjects. About 60 regular naval officers are on duty at the naval academy as instructors. The steam, mechanical, electrical, and radio laboratories seemed fairly well equipped, although very limited in the amount of apparatus available.

Lounge and reading rooms are provided for each class of cadets. In each such room, there was a piano, a library table with magazines, including those in French and English, and small tables for cards and games, also a billiard table and china for service of coffee or tea. All except first-year men are allowed to smoke and all are allowed wine with meals.

The day for the cadet starts at 5.30 a. m., then study for an hour, then coffee, milk, and bread at 7.30 a. m., then a study period, recitation period, and a period for athletic exercise until 12.30, when luncheon is served. After luncheon, study, recitation, and drills until 6 p. m. Dinner at 7 p. m. Twenty-five saddle horses are maintained for the cadets, instruction in riding being given by cavalry officers detailed for the purpose to the naval academy. For games, the cadets play volley ball, tennis, and have track athletics. It was stated that football and baseball, although liked, were considered unsuited to the Italian temperament, as the cadets, both spectators and players, were apt to become too excited, with the probabality that the game would end disastrously.

In reply to inquiries as to the method of selection and appointment of applicants for the naval academy, information was furnished that applicants about 15 years of age can apply to the Ministry of Marine for appointment to the naval academy. Applicants accepted by the ministry are referred to the Royal Naval Academy for competitive examination for entrance, and the number allowed by existing vacancies are selected after the examination. All cadets pay their tuition, although sons of all Italians in the naval and military service pay about one-half only of their tuition, the balance being paid by the Government.

All married officers on duty as instructors live in private quarters in the city of Leghorn. No quarters for married officers are provided within the naval academy. Quarters are provided for a limited number of bachelor officers on duty as instructors.

B. AERONAUTICAL

1. Statistics of flying accidents for 1926.

An analysis of accidents occurring while flying in the Italian air force and civil aviation during the year 1926:

TABLE I

Hours of flight:	
Number of aircraft flying hours (exclusive of training)	50,398
Number of aircraft training hours for training student pilots in civil schools	17,345
Total aircraft training hours	67,743
Fatal accidents:	
Number of fatal accidents (exclusive of training)	20
Number of fatal accidents in training student pilots in civil schools	17
Total fatal accidents	37
Fatalities:	
Number of fatalities (exclusive of training)	26
Number of fatalities in training student pilots in civil schools	17
Total number of fatalities	43
Seriously injured:	
Number of men seriously injured (exclusive of training)	20
Number of men seriously injured in civilian schools during training	1
Total number of men seriously injured	21
Slightly injured:	
Number of men slightly injured (exclusive of training)	91
Number of men slightly injured in civilian schools during training	18
Total number of men slightly injured	109
Hours of flight per fatal accident:	
Aircraft flying hours per fatal accident (exclusive of training)	2,520
Number of flying hours in training in civil schools per fatal accident	1,020
Average number of aircraft flying hours per fatal accident	1,831
Hours of flight per fatality:	
Number of flying hours per fatality (exclusive of training)	1,938
Number of flying hours in training in civil schools per fatality	1,020
Average number of flying hours per fatality	1,575
Hours of flight per serious injury:	
Number of flying hours per serious injury (exclusive of training)	2,520
Hours of flight per serious injury in civil schools	17,345
Average flying hours per serious injury	3,225

Hours of flight per slight injury:	
Hours of flight per slight injury (exclusive of training)	554
Hours of flight per slight injury in civil schools	963
Average hours of flight per slight injury	622
Kilometers flown:	
Approximate number of kilometers flown, exclusive of civil schools, on the basis of 150 kilometers per hour	7,559,700
Approximate number of kilometers flown in civil schools, on the basis of 100 kilometers per hour	1,734,500
Total approximate number of kilometers flown	9,294,200
Kilometers per fatal accident:	
Approximate number of kilometers flown per fatal accident, exclusive of civil schools	377,985
Approximate number of kilometers flown per fatal accident in civil schools	102,029
Average number of kilometers flown per fatal accident	251,194
Kilometers per fatality:	
Approximate number of kilometers flown per fatality, exclusive of civil schools	290,758
Approximate number of kilometers flown per fatality in civil schools	102,029
Average number of kilometers flown per fatality	216,144
Kilometers per serious injury:	
Approximate number of kilometers flown per serious injury, exclusive of civil schools	377,985
Approximate number of kilometers flown per serious injury in civil schools	1,734,500
Average number of kilometers flown per serious injury	442,580
Kilometers per slight injury:	
Aproximate number of kilometers flown per slight injury, exclusive of civil schools	83,073
Approximate number of kilometers flown per slight injury in civil schools	91,362
Average number of kilometers flown per slight injury	85,268

Causes of accidents	Air force	Civil schools	Total
Faulty pilotage	137	38	175
Engine trouble	118	10	128
Fire	6	----	6
Breakage in flight	15	1	16
Breakage at landing	49	----	49
Unknown causes	4	5	9
Landing on bad ground	18	1	19
Accidents independent of flying	29	----	29
Total accidents	376	55	431

TABLE II.—*Number of accidents, fatalities, and men injured, including civil schools (analysis table above)*

	Cause of accident								
	Faulty pilotage	Engine trouble	Fire	Breakage in flight	Breakage at landing	Unknown	Landing on bad ground	Independent of flight	Total
FATALITIES									
Pilots	13	1	1	1			1		17
Observers	3	1							4
Mechanics	5								5
School students	12	1				4			17
Total	33	3	1	1		4			43
SERIOUSLY INJURED									
Pilots	11						1		12
Observers	3						1		4
Mechanics	4								4
Total	18						2		20
SLIGHTLY INJURED									
Pilots	33	19		3	2		4	1	62
Observers	2	8		1					11
Mechanics	11	1					1	1	14
Passengers	2	2							4
Schools:									
Instructors	1					1			2
Students	12	3				1			16
Total	61	33		4	2	2	5	2	109

2. Lighter-than-air service.

[Source: M. I. D.]

The dirigible wing in Italy will consist, on completion of program, of six dirigibles, all assigned to the Navy. The six dirigibles authorized by the end of 1930 will, in all probability, be:

The *Esperia;* the *N–4* (19,000 cu. m.) and the *N–1* (19,000 cu. m.), sister ships; the *N–5* (28,000 cu. m.); the *N–6* (51,000 cu. m.); and another dirigible, the *N–7*, most likely to be a sister ship to the *N–5* (28,000 cu. m.).

By Royal Decree No. 234, dated February 13, 1927, the number of officers of the Italian aeronautical arm assigned to the dirigible wing has been established as given in the following two tables, the first referring to completion of program (end of 1930) and the second to year 1926–27:

Strength of officers of dirigible wing on completion of program

	Colonel	Lieutenant colonel or major	Captain	First and second lieutenant	Total
Wing headquarters	1				1
Dirigible center headquarters		1			1
Dirigible group headquarters [1]		6	12	21	39
Total	1	7	12	[2] 21	[3] 41

Strength of officers of dirigible wing for fiscal year 1926–27

	Colonel	Lieutenant colonel or major	Captain	First and second lieutenant	Total
Wing headquarters	1				1
Dirigible center headquarters		1			1
Dirigible group headquarters [1]		3	6	11	20
Total	1	4	6	[2] 11	[3] 22

[1] Each dirigible group includes 1 or 2 dirigibles.
[2] Part of them may be complementary officers.
[3] In the assignment of officers, preference will be given to those who have the highest number of flying hours on dirigibles, and consequently greater experience.

NOTE.—One dirigible of the "Norge" (19,000 cu. m.) type has been built for Japan and is now being assembled in that country.—Ed.

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3. *Fiat engines.*

The Fiat Co. has produced, during 1926, three new engines, called, respectively, A–20, A–22, and A–25. Their horsepower is rated 410–455, 550–590, and 900–980.

In addition, the Fiat Co. has produced a special racing engine, the A–S–2, rated 800 horsepower, with which the Macchi racers, which brought the Schneider cup back to Italy from the United States, were equipped. This special engine may be said to have been derived from the A–20, being very similar in general design.

The Fiat engine, which resembles the Curtiss D–12, is consequently the A–20 and its derivation the A–S–2.

GENERAL CHARACTERISTICS OF THE A–S–2 ENGINE

Type of engine	V, 60°, water cooled, direct drive.
Number of cylinders	12.
Bore	5.5 inches.
Stroke	6.7 inches.
Compression ratio	6.
Ignition system	Marelli magnetos, high tension.
Number of plugs per cylinder	2.
Type of water pump	Centrifugal.
Maximum temperature of cooling water	70°.

Type of oil pump	Bevel gear.
Maximum temperature of oil	60°.
Oil pressure	147 pounds.
Weight of engine, complete, with starter without water.	860 pounds.
Weight of engine with water and oil	904 pounds.
Horsepower at 2,350 r. p. m	770.
Horsepower at 2,500 r. p. m	820.
Gasoline consumption at 2,350 r. p. m	0.085 ounce h.p.

The principal characteristics of the Fiat A–S–2 engine may be resumed in a few words as follows: High power, minimum weight, minimum bulk, minimum front surface.

The minimum weight of the engine is obtained without exceeding in the use of light alloys. Magnesium alloy, for instance, is used only in case of pistons. Fiat chrome-nickel steel F–2–C, obtained by cementation, is used to a great extent. A great number of tests has revealed that cementation is very useful for resistance of materials which are subject to continuous shocks.

The analysis of stresses acting upon every single element of the engine is extremely accurate. All parts were dimensioned in accordance with the stresses so determined. Minimum dimensions are adopted, capable, however, to resist the maximum combined stress to which the part may be subject.

Cylinders: Steel, with sheet-steel water jackets in two pieces, soldered on to the cylinder.

Pistons: Stamped magnesium, with three cast-iron rings, the lowest of which also functions as oil ring. Piston rings made of hardened steel.

Connecting rods: Forged chrome-nickel steel, cemented and tempered. Main and auxiliary rod. Section of rod: Double T.

Crank shaft: Forged chrome-nickel steel, high resistance. Six cranks 120° from each other and seven bearings. The shaft is of large dimensions but hollow.

Carter: Cast aluminum alloy with seven bearings supporting the shaft. It is provided with a number of ribs in order to resist the combined stresses acting upon it.

Valves: Special steel valves, 4 to each cylinder, 2 inlet and 2 exhaust. They are parallel to cylinder axis. Cam shaft completely inclosed in a magnesium box thoroughly lubricated. Operated by crank shaft through rod and bevel gears.

Magnetos: With special device for advanced ignition. This permits having constantly the same spark intensity, whatever the advance of the ignition. It was obtained by varying directly the position of the rotors of the magneto with respect to the rotation of the crank shaft.

Cooling-water circulation: A centrifugal pump is fixed to the rear well of the carter. Velocity of rotation—1.25 times that of the crank shaft. The pump sucks water from the radiator and forces it, by means of two different pipes, to the two banks of six cylinders each. It exhausts at the top of each cylinder, every two cylinders being connected to one exhaust pipe. Cooling is thus uniform and constant.

Oil circulation: The oil, forced by the gear pump, is admitted at the center of the carter and then subdivided into two currents, one of which lubricates the bearings, connecting rods, thrust bearing. A part of the oil, after lubricating the rods, is thrown on against the cylinder walls. The other current is used for the lubrication of the cam shaft and other organs of the distribution.

Starter: The engine is started by a special gasoline-vapor starter and a small hand magneto. Compressed air is admitted through an air-tight carbureter which had been previously saturated with gasoline vapor. The compressed explosive mixture goes through a special distributer to one of the cylinders which is in the phase of explosion and expansion. At the same moment the hand magneto is launched. Ignition immediately occurs in the filled cylinder, the engine being thus started.

C. MISCELLANEOUS

1. Weather reports and forecasts.

The Italian Government broadcasts three types of radio weather signals. The first type is intended for the information of Italian and foreign meteorological offices which publish weather maps and reports covering general European conditions. It gives in detail meteorological data for various points in Italy. Much of the information given has no value for mariners and, considering the availability of other more informative services, this type is not thought to be particularly valuable for shipping. These messages are broadcasted from Rome (S. Paulo, I. D. O., on 10,750 meters) at 0950 and 2050 local time, and represent observations taken 1 hour 50 minutes previously.

The second type is useful for navigation. It consists of messages sent from the three stations of Castanea (Messina—G′xE)—wave length, 1,600 meters; Florence (G′IF)—wave length, 1,300 meters; and Rome (B′MI)—wave length, 1,850 meters and 1,750 by observation. Times of broadcast are as follows (local time):

Castanea: Winter—0720, 1020, 1320, 1520. Summer—0520, 0720, 1020, 1320, 1520, 1820.

Florence: Winter—0735, 1035, 1335, 1535. Summer—0535, 0735, 1035, 1335, 1835.

Rome: Winter—0755, 1055, 1355, 1535. Summer—0555, 0755, 1055, 1355, 1555, 1855.

Each station broadcasts short summaries of weather conditions in various Italian ports. Florence covering northern Italy on both sides, Rome central Italy, and Castanea southern Italy, Sardinia, Sicily, and Tripoli. Rome is supposed to broadcast Castanea's report as well as her own since Castanea is a short-range station. In practice it has been observed that the Rome reports cover the whole of Italy, barring the upper Adriatic. We listened for Florence and Messina persistently but were never able to hear them. The 1055 and 1555 Rome schedules were reliable and useful (but were observed to be on 1,750 instead of 1,850 meters). This type of message is sent in a skeleton form, giving for each port, in order, (1) the force of the wind in meters per second; (2) the direction of wind; (3) the amount of the sky overcast given in the number of quarters; (4) the type of clouds; (5) the direction the clouds are moving; (6) the visibility, fog conditions, etc. (sometimes omitted, if clear); (7) the state of the sea, given in numbers 0 to 9; (8) the general tendency of the weather. Some of these factors are sometimes omitted. A sample message may be quoted: "Caprodichino due nordest uno strato cumulo nord limpide mosso stabile." This means: For Caprodichino (Naples), wind force 2, direction northeast, sky (approximately) one-quarter overcast with strato cumulus clouds moving from the north, visibility clear, sea choppy (3 in Italian 1–9 table), weather stable.

The Rome 1555 schedule also contains a forecast in Italian which gives the amount and locations of the maximum and minimum European barometric pressures, general European weather tendencies, and more definite forecasts covering the Adriatic, Tyrhennian, and Ionian Seas, and the Ligurian coast. This forecast is based on observations taken at 1400, and is supposed to be valuable for the 24 hours ensuing. Another forecast, which is listed as being broadcasted at 1355, local time, has information almost exclusively aeronautical. Regional aeronautical forecasts are also supposed to be broadcasted from Castanea (G'XE, 1,600 meters) at 0840 (winter), 0720 (summer), 1820 (winter and summer); and from Taranto (IRK, 1,300 meters) at 0830 and 1825 (winter), 0705 and 1805 (summer). None of these aeronautical forecasts were observed, but extra forecasts, which were not listed in any of the Government publications, were heard occasionally from Rome (B'MI, 1,750 meters) at 1055, following the regular report of conditions, and from Venice, (ICZ, 1,200 meters) at about 1000. There seems to be no regularity about these unlisted forecasts; they were only sent at infrequent intervals and did not appear to be caused by any unusual weather prospect. All times given above are local.

A report of weather conditions is regularly broadcasted from Venice at about 1000 in the same form as described above. It deals with Venice alone.

A third type of weather signal is sent from six Italian coastal ports giving meteorological data for near-by ports. The transmitting stations, the points covered, and the letters used in the signals to identify those points are as follows:

Centocelle (Rome) (ICD) reports on:
- Capo Noli (NOL).
- Fosso CUPO (CIVITAVECCHIA) (FUC).
- Palmaria (Spezia) (PAL).
- Capraia (Island) (CAP).
- Ponza (Island) (POZ).
- Campo Serre (Elba) (SER).
- C. Palinuro (PLN).

Taranto (ICT) reports on:
- Pelagosa (Island) (PEL).
- S. M. di LEUCA (LEU).
- Viesti (VST).
- Taranto (TAR).
- Saseno (Island) (SAS).
- C. COLONNE (COL).
- BRINDISI (BRI).

Isola Chiesa (Maddalena) (ICH) reports on:
- Maddalena (MAD).
- C. SPERONE (SPR).
- C. CACCIA (CAC).
- C. CARBONARA (CRB).

Ancona (IQW) reports on:
- Venice (VEN).
- Ancona (ANC).
- Fiume Uniti (FUN).
- Colonella (CLN).
- Pola (POL).
- P. Penna (PEN).
- Zara (ZAR).

Vittoria (ICV) reports on:
- Ustica (Island) (UST).
- Messina (MES).
- Palermo (GAL).
- Favignana (Island) (FAV).
- Pantelleria (Island) (PNT).
- LICATA (LIC).
- Cozzo Spadaro (PAS).
- C. delle Armi (ARM).

Derna (ICO) reports on:
- Tripoli (TRP).
- DERNA (DRN).
- Bengazi (BEN).
- Tobruch (TOB).

Times of broadcast are as follows (all stations—wave length, 600 meters):

Centocelle, 0900, 1400 and 2100, local time.
Maddalena, 0905, 1405, and 2105, local time.
Vittoria, 0910, 1410, and 2110, local time.
Derna, 0915, 1415, and 2115, local time.
Taranto, 0920, 1420, and 2120, local time.
Ancona, 0925, 1425, and 2125, local time.

However, the time of the morning broadcast is evidently incorrect. The Ancona station was heard only once after repeated listening, at 0933; otherwise, all morning broadcasts were received approximately an hour after the time listed above (i. e., 1000, 1025). The afternoon schedules were heard at the time listed. These reports were received with perfect regularity, when near the broadcasting station; but evidently these stations have a short range, since they could not be heard at any great distance. However, it was always possible to pick up a station before reaching the territory it covered.

These signals are sent in the following form: First, the 3-letter group denoting the port reported on (as given in the preceding list); then two groups, each containing five numeral digits. If these groups are represented by letters "BBCDF SVWWX," their significance is as follows:

"BB" gives barometric pressure, reduced to 0° C., in millimeters of mercury to the nearest millimeter, with the digit "7" understood to proceed the two-digit group (i. e., "69" would denote 769 mm. of mercury).

"C" denotes tendency of the barometer, as listed in the table below, for the 3 hours preceding the observation.

"D" denotes direction of wind, as listed in table below.

"F" denotes force of wind in the Beaufort scale, with forces 9, 10, 11, and 12 (Beaufort) all denoted by No. 9.

"S" gives state of sea, numbers 1 to 9; numbers 1 to 5 are not, however, graded as in our system. The translations of the descriptive Italian words are given in the table below.

"V" denotes visibility, as listed in table below.

"WW" denotes the general weather conditions dealing with clouds and precipitation, as listed in table below.

"X" denotes the general tendency of the weather, as listed in table on following page.

8. *Table giving particulars for decoding weather messages sent in numeral code*

	0	1	2	3	4	5	6	7	8	9
BB	With "700" added, gives barometric pressure in mm. of mercury reduced to zero centigrade.									
C	Tendency of barometer. Steady up or up then constant.		Up then down; net result upward.	Steady, then up.	Up irregularly.	Down.	Down, then steady.	Down, then up.	Up, then down—net result downward.	Down irregularly.
D	Calm.	N.	NE.	E.	SE.	S.	SW.	W.	NW.	Not observed.
F	Calm.	Light breeze.	Steady breeze.	Moderate wind.	Steady wind.	Fresh wind.	Strong wind.	Moderate "storm" (burrasca).	Strong "storm" (burrasca).	"Tempest" (fortunale).
	(Above is translation of Italian descriptions.)									
S	Calm.	Almost calm.	Lightly moving (mosso).	Moving (choppy—mosso).	Agitated.	Much agitated.	Large.	Very large.	Tempestuous.	Most tempestuous.
	(Above is translation of Italian description.)									
V	Very dense fog.	Dense fog.	Fog.	Moderate fog.	Strong mist.	Mist.	Horizon invisible.	Horizon visible.	Horizon clear.	Long visibility.
WW	Sky clear to half overcast.	Half to completely overcast.	Fog.	Passing showers.	Drizzle.	Rain.	Snow.	Sleet.	Hail.	Thunder storm or like squall.
	Above numbers apply to first of two digits; i. e. 34=3, complete table, 0 to 99, is the same as given in H. O. 205, 1925 (radio aids to navigation), pp. 64 and 65, new International Meteorological Code, Code I.									
X	Weather prospect—continue in, or change to, below conditions:									
	Good; or north tendency—wind (or for better—beora).		NE. wind.	E. wind.	SE. wind (sirocco).	S. wind.	SW. wind.	W. wind.	NE. wind (or mistral).	Bad, or tendency to get worse.

An example of the translation of a message sent in the above code would be as follows:

Signal as sent	BRI	66521	18103
Equivalent symbols in table	BRI	BBCDF	SVWWX

Meaning: For Brindisi, barometer 766 mm.; tendency down; wind northeast, force 1; sea almost calm, horizon clear, sky partly overcast (translated more fully in H. O. 205, pp. 64–65); tendency of wind to shift to east.

It was evident from contrast of radio reports and actual conditions, that the Italian manner of grading the condition of the sea is quite different from ours, although both are expressed in numbers running from 1 to 9. The Italian stations are apt to give a sea a higher number than we should give it.

It is also worthy of note that observations, particularly those of the small coastal stations reported by numeral code appear to be taken inland and the force of wind is liable to be understated for points in the open sea off the port. For example, during the past month, when this ship was riding through a gale in the upper Adriatic, the force of wind was reported as 2 from Pola, 20 miles from our course.

An example of a useful and practical schedule (including only reports which we have tried) may be suggested:

Time, local—1:

1000—Venice (ICZ). 1,200 meters (if ship is in vicinity of Venice).

1000–1030—Coastal stations, numeral code (see pars. 6, 7, 8). This will not interfere with Venice schedule, since the coastal station which leads off at 1,000 is on the other side of Italy, and will be inaudible to vessels in the upper Adriatic, 600 meters.

1055—Rome (B'MI), 1,750 meters.

1400–1430—Coastal stations (see pars. 6, 7, 8), 600 meters.

1555—Rome (B'MI), 1,750 meters.

2100–2130—Coastal stations (see pars. 6, 7, 8), 600 meters.

JAPAN

A. NAVAL

1. Cruisers, destroyers, and submarines laid down or authorized.

All destroyers and submarines authorized previous to the recent replacement program, with the exception of submarines *I–57*, *I–60*, and *I–64*, are laid down.

The following is a list of cruisers, destroyers, and submarines laid down, or authorized but not yet laid down. This list does not include the replacement program (none of which have been laid down):

	Laid down	Authorized, but not yet laid down
Cruisers	Kinukasa, Aoba, Myoko, Nachi, Ashigara, Haguro	None.
Destroyers	Nos. 30, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43	Do.
Submarines	Ro-31, Ro-66, I-4, I-21, I-22, I-23, I-24, I-54, I-55, I-56, I-58, I-59, I-61, I-62, I-63.	I-57, I-60, I-64.

Since January 1, 1927, seven destroyers and two submarines have been laid down. It is evident that the Japanese are laying as many keels as possible before the convening of the coming arms conference, and it is believed that keels of the remaining submarines under the old program (*I–57*, *I–60*, *I–67*) will be laid before the date, and possibly additional ships of the replacement program.

NOTE.—The above vessels are a part of the naval program, initiated in 1922, at the conclusion of the Washington Conference. The "Kinukasa" and "Aoba" are of 7,100 tons, 33 knots, and mount six 7.5 or 8 inch guns. The remaining cruisers are of 10,000 tons, 33.5 knots, and mount nine 8-inch guns. Only the "Myoko" is launched. All the destroyers are of 1,800 tons. The submarines range from 750 tons to 2,000 tons, "I–54" and above being 1,400 tons. The replacement program (which is really an increase of the navy) is spread over a period of five years, beginning with 1927. It consists of four 10,000-ton cruisers; fifteen 1,800-ton destroyers; four submarines of about 2,000 tons; three gunboats; one mine layer; and one aircraft tender.—Ed.

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2. *Launching of "Myoko."*

The new cruiser *Myoko* was recently launched at Yokosuka.

The following characteristics were published by the Navy Department on the day of launching:

Displacement	tons	10,000
Length	feet	630
Beam	do	57
Draft	do	16
	inches	6
Complement: Officers and men		692
Speed	knots	33
Eight-inch guns		10
4.7-inch guns (antiaircraft)		4
Torpedo tubes	inches	12–21
Searchlights		5

The blister extends from a point 96 feet abaft the bow to a point about 100 feet forward of the stern. It is faired into the bottom of the ship to the level of the keel and extends upward to the 14-foot

9-inch draft mark, or 1 foot 9 inches below the water line. Its maximum thickness or depth from the outer skin of the blister to the skin of the ship was estimated as 10 feet. A bilge keel 5 feet wide extends along the blister for about three-fourths of its length. Its angle to vertical was about 20° and thus affords an additional apron or screen which a torpedo might hit before reaching the blister.

NOTE.—The "Myoko" has three sister ships. This is the first one of the class launched; the other three are building. A 10,000-ton cruiser of the replacement program will probably be laid down immediately on the "Myoko" ways.—Ed.

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3. *Laying down of cruisers.*

The execution of the construction program recently passed by the Diet has been under consideration by the naval technical department. Two cruisers (10,000 tons) are to be started during this fiscal year (1927).

As soon as the plans are completed, construction orders will be issued to the Yokosuka and Kure Navy Yards.

NOTE.—This is under the 1927 portion of the replacement program.—Ed.

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4. *Cruiser "Furutaka."*

Recent press reports state that "the cruiser *Furutaka*, which was built at Mitsubishi, has developed structural weaknesses, which the authorities are investigating. The cruiser *Aoba* (sister ship), which has been launched and is under construction, will undergo extensive reconstruction."

NOTE.—These ships are of 7,100 tons, standard displacement, 33 knots, and mount six 7.5-inch guns in single-gun turrets.—Ed.

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5. *Submarine "I-53" completed and commissioned.*

Submarine *I–53*, which was under construction at the Kure Navy Yard, was completed and placed in commission recently. The *I–53* will be assigned to the eighteenth submarine division.

The following officers were assigned to the *I–53*:

Commander S. Takasu, commanding.
Lieut. H. Sasaki, torpedo officer.
Lieut. A. Okumura, navigator.
Lieut. (junior grade) T. Koyama, on board.
Lieut. Commander (Eng.) K. Hayakawa, chief engineer.
Lieut. (junior grade) (Eng.) Y. Shimizu.

NOTE.—The "I–53" is of 1,300 tons, surface speed, 21 knots; and mounts two 4.7-inch guns and six 21-inch torpedo tubes.—Ed

6. Graduates of naval academy.

The following cadets were graduated from the naval academy March 26, 1927, and were appointed midshipmen:

Line	120
Engineer	45
Paymaster	19

B. AERONAUTICAL

1. Visit to aircraft factories.

A. MITSUBISHI INTERNAL COMBUSTION ENGINE CO.

Location: At Nagoya, Japan, in the southeastern part of the city, about 6 miles from the railroad station.

Products manufactured:

Aircraft—

Mitsubishi No. 1, fighter.
Mitsubishi No. 2, reconnaissance.
Mitsubishi No. 4, torpedo.
Hanriot army training plane.

Aircraft engines—

Hispano Suiza, 200 horsepower.
Hispano Suiza, 300 horsepower.
Hispano Suiza, 450 horsepower.

Aircraft propellers.

Personnel: 1,500 employees, all Japanese; could be increased to 2,500 with existing facilities. One German designer employed.

New construction: None in progress.

Buildings:

Office—Medium-size wooden building.

Wood and metal working shop—Large steel and corrugated-iron building near aircraft assembly shop, equipped to do all kinds of wood and metal work.

Aircraft assembly shop—Large steel and corrugated-iron building, 300 by 200 feet, well lighted, with concrete floor.

Machine shop—Large steel and corrugated-iron building, 300 by 200 feet, well lighted, with concrete floor. Contains 225 machine tools in one half of building. Other half is devoted to inspection, hand finishing, and assembly.

Foundry—Large brick and concrete building, well lighted, well equipped, but with only one melting furnace. All castings, bronze, steel, and aluminum are made here.

Heat-treatment shop—Small building adjoining foundry, well equipped.

Machine shop—Small, long narrow building adjoining or a part of foundry building; contains about 30 machines.

Power house—Concrete building, containing large Diesel engine for making electric power. Evidently for emergency use.

Navy storehouse—Very large steel and corrugated-iron building near flying field, used to store planes and material finished for the navy. Not admitted to this building.

Forge shop—Large building of modern construction, well lighted and well equipped with heavy steam hammers; crankshafts, connecting rods, and cylinder liners were being forged here.

Buildings—Continued.

Design building—Medium-sized building, steel and concrete, not admitted.

Lumber storage—Modern building about 60 by 60 feet, containing six months' supply of material.

Radiator shop—Modern building of medium size. Contains adequate equipment for making Lamblin radiators. New radiators of rectangular design, but Lamblin principle, was being manufactured for experimental purposes.

Dope shop—Adjoining assembly shop. Stated that it contained modern blowers; not entered.

Propeller shop—Room adjoining woodwork shop, modern glue room.

Seasoning kiln—Modern kiln with suitable hot-air blowers.

Test stand—Modern stand for seven engines.

Flying field: Rather small, about 350 by 250 yards, level, in good condition, and contains seaplane ramp at one end.

NOTES.—The French gasoline and air starter was stated to be very unsatisfactory. The starter consists of a series of copper pipes, one to each cylinder; a pump sprays air and gasoline into the cylinders and the cylinders under compression is fired by a booster magneto.

The Hispano engine is now being equipped with a new French gasoline pump, engine driven. Two units are mounted on the rear end of the engine, being duplicates, so that if one fails the other can be used, and either one can be operated by hand.

All the Mitsubishi planes are equipped with flotation bags in the tail, inflated by air, and are kept inflated at all times.

It was stated that 100 engines per year could be manufactured.

All engine parts are manufactured except the magnetos and carburetors. The Sev magneto is imported from France.

It was stated that great difficulty is encountered in preventing blowholes in aluminum castings and that it is undoubtedly due to the moisture necessary in the sand. About 40 per cent of the castings must be rejected.

Three old Mitsubishi No. 3 triplanes were seen. It was stated that they were failures and would be scrapped.

One special Mitsubishi plane was observed ready to fly. It is a little larger than Mitsubishi No. 1, has two cockpits, thick wings, and was designed to train Mitsubishi factory pilots on their small field.

Two civilian pilots are employed for test work.

One plane in five is tested at the factory.

All engines are given a three-hour run on the test stand before delivery. These engines are not run in by electric motor before going to the test stand.

It was stated that the Mitsubishi plane, which is supposed to be pure Japanese design, is really nothing more than a copy of British design.

In general, the factory is modern in every respect. A general air of prosperity and optimism prevails. This factory is building many planes and engines for the navy, and has thus developed a well-trained corps of employees. Everybody works hard on the products, tests and inspections are properly conducted, and a general air of efficiency, prosperity, and good management is apparent.

B. KAWASAKI DOCKYARD, AIRCRAFT DEPARTMENT

Location: Kobe.

Products manufactured:

Aircraft—

Salmson for army.

Dornier, experimental.

All metal, monoplane, civilian.

Products manufactured—Continued.
Aircraft engines—Salmson, 230 horsepower.
Propellers—Wood and steel (experimental).
Personnel: 500 employees, all Japanese.
New construction: None.
Buildings (buildings are old and poorly lighted):
Machine shop—Large building containing 200 machine tools of American and Japanese manufacture. Fairly well arranged.
Assembly shop—Large building, well lighted.
Metal shop—Large building adjoining assembly shop; much space available for assembly here.
Engine erecting shop—Medium-sized building where engines are assembled and tested by running in for two hours by using electric-motor drive.
Foundry—Medium size.

NOTES.—The only work in progress was machine work on Salmson motor parts and the manufacture of two all-metal passenger monoplanes. These planes are built entirely of aluminum which is imported in sheets from France. The sheets are cut and drawn in the shop to make channel bars and stiffeners. There are no longerons in this place. It is designed as a land plane but could easily be put on floats. The cabin is quite large and can accommodate eight people comfortably. The weight of the plane loaded is 3½ tons, of which 1½ tons is useful load. Efforts have been made to interest the navy in this plane for use as a torpedo plane. The speed will be about 90 knots. It is claimed that this is an original Kawasaki design.

The attempt to manufacture a steel alloy propeller has been made here. One propeller was seen and it was stated that in test this propeller was not rigid enough and consequently twisted.

This company has the manufacturing rights for the Dornier metal boats, but apparently they are not manufacturing any at this time.

This is a modern shop, well equipped to handle metal construction.

C. KAWANISHI AIRCRAFT WORKS

Location: Kobe.
Products manufactured:
Aircraft—
Kawanishi 8 biplane.
Kawanishi 8–B monoplane.
Propellers, wood.
General—
Spinning machines.
Scales and weighing machines.
Steam radiators.
Personnel: Eighty employees in aircraft department, including one German engineer. Doctor Karman, famous German scientist, and designer of wind tunnels, has arrived for six months' work with the new wind tunnel. At airdrome there are 20 pilots and 30 mechanics.
New construction: Modern wind tunnel, concrete construction throughout, 7 feet in diameter, has just been completed.
Buildings:
Office—Modern steel and concrete building.
Assembly shop—Medium-size building containing woodworking and propeller shop. One new plane was being built. Shop was generally cluttered up with parts of old planes.

Buildings—Continued.

Machine shop—Small, containing 30 machines, very dark and poorly arranged.

Buildings: Foundry—Large building, well equipped, but very dark, but has modern safety devices.

NOTES.—The new wind tunnel was built at a cost of $75,000 and it was stated that it was built solely in order that good planes of Japanese design might be forthcoming. It is hoped in this way to do away with the Japanese custom of copying old foreign planes. The tunnel was designed by Doctor Karman, a German scientist, who is at present employed by Kawanishi for six months to get them started with the new tunnel. The tunnel is a complete loop, and the air stream is furnished by a propeller drawn by 200-horsepower motors in top section of loop.

The company is attempting to design and build planes for commercial use primarily. At present they have orders for three planes, one for a commercial company and two for the Defense Society, which plans to use them on a trip completely around Japan.

The Kawanishi Co. operates an airdrome at Osaka and a short mail line. It was stated that they have two hangars, land field, seaplane runways and 20 planes, all purchased secondhand from the army and navy. The mail line is the only source of income here and the cost is 1.20 yen per kilometer with a small Government subsidy of 0.35 yen per kilometer.

The Kawanishi 8–B monoplane building is a seaplane, twin floats of extra heavy design, for use in rough sea. It has seven hours' cruising radius and carries 200 kilograms pay load.

This company made a trial flight to Dairen last year and expects to start a line to Dairen and later to Shanghai.

A set of test or calibration scales for use up to 250 tons was observed.

No engines are manufactured.

D. NAKAJIMA AIRCRAFT FACTORY

Location: At Otamachi, about $2\frac{1}{2}$ hours by train from Tokyo.

Products manufactured:

Aircraft—

Nieuport 29 (for army).

Hiro reconnaissance (for navy).

Navy training plane.

Propellers, wood.

Personnel: 500 employees, all Japanese.

New construction: None.

Buildings (all the buildings are built of steel and corrugated iron and are in fair condition):

Office—Two-story, large.

Inspection room—Medium-sized building where parts are inspected.

Dope room—Small, equipped with blowers.

Navy assembly shop—Large building containing propeller shop, piecework benches, and assembly space. No planes were under manufacture other than one large experimental bomber.

Army assembly shop—Large building containing jigs for manufacturing Nieuport built-up fuselages. One section of building equipped with 10 woodworking machine tools.

Kiln—Small building.

Sawmill and lumber storage—Medium-sized building.

Buildings—Continued.

Drafting room—New building, well equipped.

Metal shop—Medium-sized building, well equipped.

Metal stock room—Small building near metal shop.

NOTES.—This factory is owned by Mr. C. Nakajima, a retired naval officer, who also owns the Nakajima Engine Factory. Mr. Nakajima manages the airplane factory. Mr. Nakajima is a pilot, having learned to fly at San Diego in 1912.

This inspection occurred at the beginning of the fiscal year and all planes had been delivered on old contracts and production had not started on new contracts. It was stated that new contracts are not satisfactory and that the custom in the Japanese Navy is to give airplane contracts to the factories that have the most pull.

An experimental bombing biplane was observed. The fuselage is about the size of an F–5 hull and is to be mounted on twin pontoons. The wings are about the size of F–5 wings. The power is to be two Bristol "Jupiter" engines. It was stated that this plane would carry 3,000 pounds for 2,000 miles. However, it was also stated that Mr. Nakajima had decided to use three Jupiter engines and that a new fuselage would have to be made.

This factory operates a test field, two hangars, about 4 miles from Otamachi. One plane in five is taken to this field on carts, assembled and tested by factory pilots.

All the employees are from the surrounding country and are trained at this factory.

Mahogany and walnut is used entirely for propellers.

This factory seems to be fairly well organized and equipped.

E. NAKAJIMA ENGINE FACTORY

Location: At Ogikubo a suburb of Tokyo.

Products manufactured: Lorraine-Dietrich 400 horsepower and 450 horsepower engines.

Personnel: 160 Japanese employees, 1 British engineer.

New construction: None in progress. All the buildings are new, less than two years old.

Buildings:

Office—Large two-story brick building.

Machine shop—Steel, concrete, and glass, modern construction, 200 by 150 feet, containing about 75 machine tools, namely, all of American manufacture. Half of the building is devoted to assembly purposes.

Stock room—Large building, same modern construction, containing stock storeroom and parts received from France. Also used as dining hall. Has many heavy benches for future use in hand finishing and metal work.

Annealing shop—Medium-sized modern building containing blacksmith shop, heating plant, and heat-treatment shop.

Foundry—Medium-sized modern building, not entered. It was stated that the foundry had not started operating and that there was nothing in this building.

Laboratory—Small modern building containing modern physical and chemical laboratory.

Airplane building—Large building similar to machine shop. Concrete floor entirely unoccupied. It was stated that it would be used at a future date for the manufacture of aircraft.

Notes.—This plant is owned by Mr. Nakajima, a retired naval officer, who also owns the Nakajima Aircraft Factory at Otamachi. The younger brother of Mr. Nakajima manages the engine factory.

It was stated that the only work being done now is manufacturing engines for the navy at the rate of three per month.

One Bristal "Jupiter" engine was observed and it was stated that this company has the manufacturing rights for the Jupiter and has hired one British engineer, and it is proposed to build an experimental engine very soon.

All castings are received from France. Machine work and assembly only is done here.

Carburetors and magnetos are also imported.

Three French engineers were formerly employed but have returned to France.

Manufacture of a 650-horsepower engine is contemplated in the near future.

This plant is dependent entirely on Government orders.

The visit being made at the end of the fiscal year, it was stated that all engines on contract were finished and shipped out, and the manager was pessimistic about future contracts.

This is well-managed, extremely modern, well-equipped engine factory.

F. TOKYO GAS AND ELECTRIC SUPPLY CO.

Location: At Omori, about 20 minutes by the Tokyo-Yokohama electric trains from Tokyo station.

Products manufactured:

- Aircraft engines.
- Westinghouse air brakes.
- Japanese air brakes.
- Automobile trucks.
- Fire pumps, engine-driven.
- Machine tools.
- Spinning machines.
- Gauges and meters.
- Bridge annunciators.
- Ford truck bodies.
- Electric hoists.
- Large gear wheels.

Personnel: 1,000 employees, all Japanese, are at present employed. This number could be increased to 2,000 without increasing the plant facilities.

New construction: None in progress.

Buildings:

- Several machine shops.
- Foundry.
- Blacksmith shop.
- Heat-treatment shop.
- Carpenter shop.
- Storehouse.
- Assembly building (not entered).
- Administration building.

All the above buildings are very dilapidated and for the most part built of wood or wood and corrugated iron, with the exception of two machine shops which are built of brick and corrugated iron. All buildings are poorly lighted and the machinery is very poorly arranged, as is the relation of one shop to another. Much labor and time must be lost in moving a product from one process to another. No safety precautions are taken, and workmen are not supplied with goggles when working on machine tools.

Equipment: Modern machine and carpenter tools and forging hammers, mostly of American manufacture. Shops are equipped to make any kind of machinery and large castings.

Aircraft engine department: This department manufactures the following engines for the army and navy and spare parts for these engines:

For the navy—Le Rhone 80-horsepower rotary for Avro, training plane, and 130-horsepower six-cylinder Benz for navy training plane.

For the army: Le Rhone 110-horsepower rotary.

The entire engines are made at this plant, castings, forgings, machine work, assembly, and test. A few men were engaged in the machine shop on parts. Several crank cases, cylinders, and pistons were seen, probably not more than enough for five complete engines. All of these parts were for the Le Rhone engine. It was stated that on account of the fiscal year ending on March 31, all deliveries had been made on old contracts and that new contracts were not sufficient and that no engines had yet been assembled.

General: These shops are so poorly arranged that it is believed that an increase in the number of employees would result in so much additional confusion that the percentage of output would not increase in proportion to the increase in employees. In general, this factory seems to be traveling backward and rumors have been heard that it is in financial difficulties and may have to close down.

G. HIRO NAVAL AIRCRAFT FACTORY

Location: At Hiro, about 5 miles east of Kure Navy Yard.

Products manufactured:

Aircraft—

F–5's.

Hiro Reconnaissance, type 14.

Aircraft propellers, wood.

Aircraft engines—

Lorraine Dietrich, 450 horsepower.

Benz, 130 horsepower.

Personnel: 950 employees, civilians, all Japanese.

New construction: Motor-test stand is being moved to site behind airplane hangars.

Buildings:

Office—Large two-story wood building.

Machine shop—Large steel and concrete building, well lighted, 300 by 250 feet. One half of the space is given to approximately 250 machine tools, well placed. The other half of the building is used for hand finishing, assembly, and some engine overhaul. Most of the machines are of American make.

Heat-treatment shop—Medium-sized steel and brick building containing the following—

(1) Heat-treatment ovens in one-fourth of building, well equipped and lighted by mercury vapor lamps.

(2) Scientific section—room in one corner containing equipment for studying the structure of metal.

(3) Instrument test room—Room equipped with modern appliances to test aircraft instruments.

(4) Machine shop—The remainder of the building is equipped with about 30 machine tools.

Buildings—Continued.

Assembly and woodwork building—Large steel and corrugated-iron building, well lighted, 300 by 250 feet. One third of the building is equipped with machine carpenter tools, equipped with modern safety appliances and exhaust ducts for carrying dust away from the machines. The center third of the shop is devoted to piecework on aircraft parts and to the manufacture of propellers. The other third is devoted to the manufacture of hulls and fuselages and to the assembly of finished planes.

Kiln—Modern brick kiln for seasoning lumber.

Fabric shop—Modern, a part of assembly building.

NOTES.—All parts of engines and aircraft are manufactured here except carburetors, magnetos, and crankshaft forgings. These forgings are made at the Kure Navy Yard or are purchased from civilian companies, and the magnetos and carburetors are purchased abroad. The machine work on the crank shaft is done here, however.

Every effort was made to impress us with the care and accuracy of the machine work, tests, and scientific investigation, and it was stated that the motto here is "quality" and not "quantity." It was stated that the Lorraine Dietrich engines made here develop 20 to 30 horsepower more than similar engines purchased from France.

Experiments are being conducted with magnesium alloy for pistons and bearings and with "electron" for crank cases.

Some engines are overhauled at this factory.

It was stated that the propeller design for the Hiro reconnaissance plane is very difficult in order to get one that will be efficient for taking off and also for cruising. No attempt has been made to design a metal propeller here.

It was stated that great difficulty has been encountered with the Hiro plane pontoons. They do not stand up under hard landings.

The designer, a lieutenant, is a graduate of Tokyo University aeronautical course and seems to be very competent and interested in aviation.

All officers seem especially interested in their departments.

It was stated that planes and engines could be manufactured much more economically at this factory than by civilian factories.

This factory is modern in every respect. It is equipped to turn out good engines and aircraft on a large scale. Every effort is made to strive for perfection in work. The factory gives the impression of being a well organized, efficient, and smooth-running outfit, turning out excellent material.

H. SASEBO NAVAL AIRCRAFT FACTORY AND REPAIR DEPOT

Location: Sasebo Navy Yard.

Products manufactured:

Aircraft—Mitsubishi No. 1 fighter.

Propellers—Wood.

Repair base for fleet planes and major overhaul for Sasebo Air Station and Omura Air Station.

Personnel: Three hundred employees, all Japanese, civilians, under a lieutenant commander of the construction corps.

New construction: None.

Buildings:

Assembly shop—Large, modern construction, building 300 by 250 feet, well lighted, fireproof and having concrete floor. This building contains carpenter tools, piecework benches, metal shop, dope shop, a few machine tools and propeller shop, and glue room. All activities are well equipped. Apparently most of the carpenter work is done elsewhere in the navy yard.

NOTES.—The inspection of this plant was rather hurried. It is a well-centralized unit, and seems capable of turning out much work.

All the major repair work for Omura and Sasebo is done here, as these stations have no facilities for major overhaul.

No motor overhaul is done here. Apparently Omura, Sasebo, and the fleet organizations do their own overhaul.

It was stated that civilian experts are sometimes sent to Omura and Sasebo for special work.

It was stated that the primary purpose of this station is major overhaul of planes from Omura and Sasebo Air Stations and planes from the fleet, but that when the men are not busy with overhaul, they are put to manufacturing new planes. However, more effort was being expended on the manufacture of 10 new Mitsubishi fighters than on repair work.

The metal shop seemed to be particularly well equipped.

In general this is a small unit but well organized and operating effectively and would be an excellent nucleus for expansion at a future date.

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2. Hiro naval air station.

Location: Five miles east of Kure Navy Yard and adjacent to Hiro Naval Aircraft Factory.

Purpose: Flight testing station for seaplanes and engines manufactured at the Hiro factory and practice flying for station pilots and pilots at the Hiro factory.

New construction: None in progress.

Personnel:

Commanding officer, Rear Admiral Ueda (not pilot).
Officer pilots, 1.
Enlisted pilots, 3.
Enlisted men, 50.
Civilian employees, none.
One-half squadron is stationed here.

Buildings and equipment:

Hangars—Two steel and corrugated-iron hangars, capable of housing six reconnaissance planes each. It was stated that it was used as a storeroom.

Storeroom—Stone building, behind hangars.

Test stand—There is a large test stand behind the hangars near a high bluff that is to be used for testing engines made at Hiro. Capacity, four engines.

Ramp—There is one concrete ramp halfway between the two hangars. The area between the two hangars is concreted.

Road—A new road is being built from Kure which will be very wide when completed. At present the road from Kure is in very poor condition and very narrow.

Landing field—None. No space available for field.

Planes in commission—Hansa seaplanes, 5.

NOTES.—This station can not readily be made of much military value. The space for additional hangars is limited and the nature of the small bay, surrounded by high hills, makes flying rather difficult, especially for large planes.

All the Hansa planes are equipped with metal floats. It was stated that they are very satisfactory. It was noted that the noses of the floats were mashed

in on several planes, and it is believed that the floats must be very sturdy not to develop leaks under such punishment as they must receive.

No night flying is done on this station.

The buildings and grounds were clean and well kept.

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3. Sasebo naval air station.

Location: This station is situated on a small peninsula 3 miles southeast of the Sasebo Navy Yard.

Purpose: Service operating reconnaissance and coastal patrol station, engaged in practice work in radio, navigation, night flying, bombing, machine gunnery, reconnaissance and training of F-5 pilots for squadron use only.

New construction: A new gymnasium is being constructed behind the administration building, to be used for fencing and jujutsu.

Personnel:

Commanding officer—Captain Wada, Imperial Japanese Navy.

Officers, ground, 30.

Officers, pilot, 20.

Enlisted pilots, 20.

Enlisted men, 400.

Civilian employees, none.

Two service operating reconnaissance squadrons are stationed here.

Buildings and equipment:

Hangars—

Two steel and brick, capable of housing 10 Hansa planes each. One of them at present used as erecting shop.

One double steel and corrugated iron hangar, capable of housing eight F-5's.

Ground in front of hangars and between hangars is concreted.

Administration building—One 2-story wooden building, also used as officers' quarters.

Barracks—One 2-story wooden building, capacity, 400.

Aircraft supply depot—Large building, steel and concrete, two stories high in center section. A track leads from the flying beach to this building and it could easily be used as a hangar. This building is under the cognizance of the Sasebo Navy Supply Depot.

Storerooms—Several small wooden buildings are used as operating storerooms.

Shops—

Machine—Small wooden building, 20 by 20 feet, containing 8 or 10 machine tools.

Carpenter—Small wood building, 20 by 20 feet, with practically no equipment.

Engine overhaul—Wooden building, 40 by 30 feet. Properly equipped to do all station engine overhaul.

Test stand—Steel and brick building, 20 by 30 feet, containing stands for testing two engines. This building contains overhead steel trolley which connects with engine-overhaul building to facilitate the handling of engines.

Radio masts—Two steel masts, 120 feet high, set on large porcelain insulators. Used for communicating with planes.

Gasoline storage—Small stone building set back into a hill.

Magazine—Small stone building, partially covered with earth, near gasoline storage.

Buildings and equipment—Continued.

Rifle range—Short range for training machine gunners near beach in northeast corner of station. Equipped with model planes and movable platforms for gunners.

Piers—Concrete pier near large supply depot storehouse. Small dock near magazine for small boats.

Ramps—Three concrete ramps for handling reconnaissance planes.

Night-flying equipment—All planes were equipped with searchlights. One large landing searchlight was seen.

Parade ground—Between hangars and office building, too small to use as landing field except for emergency landing.

Hospital—Several wood buildings on the hill near the large storehouse are used as an isolation hospital for the Sasebo Navy Yard.

Listening station—Two French parabolic listening devices and direction finders are located on two hills near the barracks, about 600 yards apart. These devices give good results in accurately locating planes within 30,000 feet of the station.

Minor-caliber proving range—On a level stretch of beach near the air station a range is located so that guns fire into a concrete tunnel in the near-by hill. This range is used for testing minor-caliber guns.

Torpedo test station—Located on point about 1 mile from air station toward Sasebo. Range of abount 5,000 yards with observation rafts every 1,000 yards; used for testing torpedoes.

Roads—About 1 mile from small dock to hangars.

Crane—One large steel crane on the sea wall is used for handling F–5's.

Turntables and tracks—A system of tracks run from the crane to the F–5 hangar and to the large storehouse. Suitable turntables permit the proper changes of direction.

Trucks—Special steel trucks with wheels to run on the tracks are used to handle F–5's. These trucks never enter the water, since the planes are always put in the water and taken out by the crane.

Meteorological station—Small wooden building situated on the large bill behind the administration building.

Planes in commission—

Hiro reconnaissance, 1925 model	8
F–5's	7
Hansa	7
Total	22

NOTES.—No flying was done on the day the visit was made. There was a strong, gusty wind blowing. The many high ranges of hills around the bay cause extremely bumpy air, and flying is sometimes very difficult. The strategic location of the station is excellent, but it is believed that otherwise the location of the station is ill advised. There is no communication with Sasebo (or any outside point) by rail or road on account of the mountainous country. Everything must come in and go out by water.

The mirror tracking device is used for bombing practice, and all planes are fitted with signal flaps to indicate instant of release.

This station has suffered only one death from accidents in the six years of operation. This death was caused when bumpy air threw a mechanic overboard. A shrine is erected on the hill behind the administration building to the memory of this man.

Pilots average 15 hours flying per month.

Regular bombing and gunnery exercises are not held, but practice is continuous.

Unfavorable wind over the mountains frequently makes it necessary to taxi several miles with the F 5's before attempting to take off.

Only small fabric repair jobs are done on this station. Major overhaul jobs are sent over to the Sasebo repair depot.

Expert engine mechanics sometimes come over from the repair depot to assist the enlisted mechanics.

The station was in excellent condition; hangars and buildings clean and free from excess material. Men were neat, clean, and industrious. It gave the appearance of being an extremely efficient station as far as the ground work is concerned. From the bombing equipment installed on all planes it is believed that the flying part of the station is just as efficient. However, this station can not be enlarged to any great extent on account of the mountains and deep water, and, as stated before, the air conditions make it a very undesirable flying station.

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4. Kasumigaura naval air station.

Location: Seaplane station is on the northwest shore of Lake Kasumigaura. Land station and school buildings are 1 mile from seaplane station and 3 miles from Tsuchiura, where there is a railroad station.

Purpose:

(1) Flight training school for pilots, officers, and enlisted men.

(2) Reconnaissance training school for pilots, officers, and enlisted men includes aerial gunnery, bombing, torpedo, radio, photography, and navigation.

(3) Ground school for pilots in engineering, strategy and tactics, theory of flight and rigging.

(4) Ground school for mechanics and riggers, not pilots.

New construction: Ground broken for one large new seaplane hangar, one large new landplane hangar, and one large building (purpose unknown) behind seaplane hangars. One new garage to house 80 automobiles.

Personnel:

Commanding officer, Rear Admiral S. Ando, Imperial Japanese Navy.
Executive officer, Capt. S. Sato, Imperial Japanese Navy.
Officer instructor pilots, 30.
Officer student pilots, 20.
Officer students, reconnaissance, 8.
Enlisted instructor pilots, 60.
Enlisted student pilots, 40.
Enlisted students, reconnaissance, 20.
Officer students, engineering, 5.
Enlisted students, engineering, 150.
Officers, ground, 95.
Enlisted men, 1,500.
Civilian employees, 20.

Buildings and equipment:

Hangars—

1 dirigible capable of housing 2 ZR–2 type.
9 permanent landplane hangars capable of housing 100 training planes.
2 temporary canvas landplane hangars capable of housing 12 training planes.
8 permanent seaplane hangars capable of housing 82 training planes.

3 large two-story wooden barracks.
1 officers' quarters, permanent, modern, steam heat, comfortable.
1 barracks at dirigible hangar.

Buildings and equipment—Continued.

1 gymnasium.
1 two-story wooden administration building.
1 garage (new).
1 permanent research officers' quarters.
1 group of 10 permanent buildings containing the research laboratory (not permitted to inspect).
1 radio station, two 150-feet steel masts.
1 meteorological station, small, wood.
1 student officers' quarters, one-story wood building.
5 storage buildings, small, wood buildings.
1 warrant officers' quarters, one-story wood building.
1 galley and bathroom.
1 power plant.
2 permanent test stands at landplane hangars.
1 warehouse of permanent construction, large, capable of stowing 300 training planes, disassembled.
1 hydrogen plant at dirigible hangar.
1 office building, small, at seaplane station.
1 office building, small, at landplane hangars.
1 hospital, two-story, wood.
1 engine overhaul and machine shop at landplane hangars. Large permanent building containing 20 machine tools and facilities to overhaul 30 to 40 motors at one time. One hundred enlisted mechanics and 10 civilian mechanics were working in the shop at time of visit. Also contains adjoining blacksmith shop, foundry, and metal shop capable of doing all necessary repair work. One of the permanent seaplane hangars is being used for seaplane motor overhaul.
1 surface covering and dope room. This building contained the following shops: Surface covering and dope room combined with the varnish room; dope and varnishing drying room; operating spare surface storage. The drying room is equipped with two sunken blowers running the entire length of the room.
1 permanent carpenter shop, divided into two rooms, one containing 12 machine carpenter tools and the other used for hand-carpenter work. Much pontoon repair work on hand for seaplane station.
1 permanent storeroom, contains miscellaneous operating equipment.
2 erecting shops—one of the permanent land hangars and one permanent seaplane hangar used as erecting shops.

School buildings, all wood, one story—

Gunnery and bombing building containing machine guns, bombs, bomb sights, bomb gears with charts for instruction purposes.

Photographic laboratory containing developing room, washing room, drying room, dark room, about 24 hand-held cameras, three mapping cameras using magazine of 12 plates. In general well equipped for instruction and practical photography.

Radio-instruction building containing spare operating sets, repair room, instruction sets, room for practice receiving containing bench with 30 head phones and room for practice sending containing recording machines.

Torpedo-instruction building containing 13 type 44 torpedoes. The type 44 is obsolete destroyer type, 18 inches, 15 feet long, 1,400 pounds, has reciprocating engines, range 8,000 yards, and makes speed of 25 knots at 3,000 yards. Building also contains air compressor and three cast-steel dummy torpedoes.

Buildings and equipment—Continued.

School buildings—Continued.

Instrument shop for instruction and service repair. Contains complete equipment for test and repair of instruments.

Engine overhaul, machine shop, blacksmith shop, and test stand. Contains 10 machine tools and facilities for overhauling 12 motors simultaneously. Could be used for service overhaul and machine work without any changes.

Surface covering and dope shop, small, no modern facilities, good for instruction purposes only.

Erecting shop for instruction in assembly and alignment of planes.

Gymnasium used for instruction of fencing and jujutsu.

Miscellaneous—

Machine-gun butts—Modern, two butts, much training equipment, including cockpit mounted in gimbals for fixed gun practice and one for movable gun. Facilities for firing from plane on ground, many small plane targets for practice at different angles. One magazine for bombs and one for detonators covered with earth.

Gasoline storage—Underground near large warehouse, also two underground operating tanks at landplane hangars and one at seaplane hangar.

Landing lights—Several planes are equipped with small searchlights. The only large searchlights seen were two mounted on trucks.

Automobiles and trucks—There are about 40 trucks and 30 touring cars, not including 12 Ford propellor spinning machines.

Landplanes in commission and reserve (four squadrons operating)—	
Avro, 110 horsepower LeRhone engine	30
1925 Yokosuka type training plane	4
Mitsubishi, No. 2, 1921 model, reconnaissance	12
Mitsubishi, No. 4, 1921 model, torpedo plane	4
Mitsubishi, No. 4, 1924 model, torpedo plane	2
Mitsubishi, No. 1, 1921 model, pursuit	6
Landplanes stored in warehouse—	
Avro (approximately)	84
1925 Yokosuka type training plane	45
Mitsubishi, No. 4, 1924 model, torpedo	2
Mitsubishi, No. 2, 1921, reconnaissance	6
Sparrow Hawk (worn out)	1
Total landplanes	196
Seaplanes in commission and reserve (three squadrons operating)—	
Hansa	15
Yokosuka type training seaplane	25
Fairey Pintail, reconnaissance (modified Japanese type 14)	4
Seaplanes stored in warehouses—	
Hansa	20
Seal	2
Total seaplanes	66
Total planes, Kasumigaura	262

Buildings and equipment—Continued.

Lighter-than-air (in commission)—

Semirigid N–3 type, 7,500 cubic meters (sister ship of Italian *Norge*, obtained from Italy and ready to fly Apr. 1, 1927)	1
Nonrigid, 3,000 cubic meters, No. 1 type, 2 engines, 5 passengers	1
Total airships	2

Mooring mast—Small Y-shaped mooring mast near dirigible hangar.

Flying field—One mile square with hangars and shops in center of field. Field is level and well drained. Landings and take-offs may be made in any direction. At present traffic is well regulated, and all landings are made in accordance with signals.

Signal masts—One near landplane hangars and one near seaplane hangers to direct flying.

Ramps—Seven concrete and two wood ramps at seaplane station.

Concrete aprons—Area between seaplane hangars and the beach and between hangars well concreted.

NOTES: This station is an excellent training station; buildings are mostly of permanent construction, well located and of modern construction; shops are well equipped and adequate to care for the needs of the station; the field is large and level and flying traffic is regulated by flag signals. Lake Kasumigaura is excellent for seaplane training, especially for beginners. A remarkably high state of discipline prevails. Enlisted men are intelligent looking, husky, and alert; they are always busy and move on the double; they seemed friendly and anxious to explain their own particular specialty. Officers are efficient, interested in their profession, perfectly human and friendly, and possess a sense of humor. Admiral Ando is an unusually high type of officer, being quiet, good natured, and efficient, and it is believed that the general high state of efficiency observed is a reflection of his high character and for this reason the desire of all his officers and men to make his station a good one.

A demonstration parachute jump was made by Mr. L. H. Ford, representing the Irving Air Chute Co., after which a parachute jump was made by a Japanese aviator, using the Irving parachute. Many motion pictures of the event were made from the air and from the ground.

The Eastman hand-held camera is the one principally used for aerial photographs. Several German hand-held cameras were seen, and it was stated that they are far superior to the Eastman. The stereoptic method of reading photographs is used.

The Thornton-Pickard camera gun is used and is not satisfactory because of the large size of the barrel (about 3 inches in diameter) allowing great interference with film from wind.

The Wimpers Mk II course-directing bomb sight is used. For training a mirror is mounted on target and course of plane is tracked on mirror and visual signal is made when theoretical bomb is dropped. Observer at mirror figures the error of the bomber.

The Vickers and Lewis machine guns are used. It was stated that the Lewis gun gives much trouble from jams, which evidently indicates a lack of proper understanding of the gun. Electric heating units are used to keep the breech end of the gun warm so that the grease does not become hard and thus interfere with the operation of the gun.

Bombs in use are 25-pound practice bomb, 150-pound service, 220-pound service, and 500-pound service.

The Marconi AD 2 and AD-6c radio sets are used for instruction and service. Range of the AD-6c is from 100 to 200 miles.

Barracks are large, clean, and comfortable. Each building is divided into four large rooms each housing 125 men. There are several rooms in each building for noncommissioned officers. Men sleep in hammocks, eat in the same room at 6.30 a. m., 12 m., and 4 p. m., and stow bags in square bins at end of the room. Bathrooms are in adjacent building and consist of two large concrete tanks about 10 by 10 feet and 3 feet deep and are kept full of warm water. The only equipment seen in the galley was large steam boilers for cooking rice or vegetables.

The hospital is adequate and fairly well equipped and it was stated that about 3 per cent of the men report for medical attention daily.

In 1926 the station had 39 serious crashes, resulting in 7 deaths. Most crashes are due to motor failure. Apparently there is considerable motor trouble, especially with the geared Hispano Suiza used in the Hansa seaplanes.

Last year 21 officers and 79 enlisted men completed the pilot and reconnaissance courses. In general, two enlisted pilots are trained for every one officer. Enlisted pilots are not considered good pilots, but it is not convenient to use so many officers for pilots.

Students are taught from the beginning in landplanes to make a flat glide and land as slowly as possible, so that they can land on carriers.

The *N-3* semirigid dirigible purchased from Italy was inspected. The main gondola contains control car, cabin, radio room, and toilet. Two stream-lined gondolas contain one Maybach engine each, with clutch between engine and propeller and propeller brake. Engines may be reached in flight by walkway from keel. Capacity of bag is 7,500 cubic meters, filled with hydrogen. Ladder leads through bag to gunnery platform on top of bag. Sixteen gasoline tanks of about 50 gallons capacity each were noted. The normal crew is five men. Gas valves are operated by compressed air. The assembly is nearly completed, and it is expected to fly before May 1, 1927.

There is a modern hydrogen-producing plant near the dirigible hangar, but it was stated that all hydrogen gas is received from commercial firms in bottles from Tokyo.

All flying is done in the morning between 7.30 a. m. and 11.45 a. m. The afternoon is devoted to work on planes and ground instructions for students.

Planes are washed daily, fittings and wires kept free from rust, cockpit clean; in general, they are kept in excellent condition.

NOTE.—Further information on this station was given in the February Bulletin.—Ed.

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5. *Omura naval air station.*

Location: This air station is located on Omura Gulf, about 15 minutes by automobile from Takematsu.

Purpose: Service operating station, pursuit and torpedo planes.

New construction: New building for instruction in fencing and jujutsu. New steel frame building to be used as torpedo shop.

Personnel: Commanding officer, Captain M. Takahara, I. J. N.—

Officers, ground	25
Officer pilots	25
Enlisted pilots	20
Enlisted men	300
Civilian employees	None.

Two service squadrons are stationed here, namely, one pursuit squadron and one torpedo-plane squadron.

Buildings and equipment:

Hangars—

Two steel and concrete land-plane hangars capable of housing 20 pursuit planes each.

One Bessenau steel and corrugated-iron seaplane hangar capable of housing four Hansa type.

One Bessenau steel and corrugated-iron land hangar used for storage purposes.

Administration building—Large two-story wooden building. Also used as bachelor officers' quarters. Can accommodate 40 officers.

Barracks—One two-story wood building, capacity 400.

Storerooms—One Bessenau corrugated-iron hangar. Several small wood buildings.

Shops—

One machine, metal and blacksmith shop, 60 by 20 feet, well equipped and arranged, containing 16 machine tools forge and metal repairing equipment.

One carpenter shop, wood with metal roof, 60 by 20 feet, containing seven woodworking tools.

One dope and fabric shop, wood with metal roof, 40 by 20 feet. Not entered, as jujutsu practice was in progress within. Very little fabric work done on the station.

One engine overhaul shop, wood with metal roof. Well equipped to handle station-engine overhaul work. All the station engine overhaul is done on the station.

One test stand, corrugated-iron building. Can test three engines at one time.

Miscellaneous—

Pigeon loft—Small wooden building.

Radio masts—Two masts 120 feet high.

Gasoline storage—Underground in northeast corner of field.

Magazine—Underground in northeast corner of field.

Rifle range—Short range, near magazine.

Pier—One long concrete pier at end of road leading from shops to seaplane hangar.

Ramp—One concrete ramp in front of seaplane hangar running well out in the gulf through shallow water.

Night-flying lights—One searchlight mounted on a motor truck. Flood lights mounted on hangars. Several planes equipped with small searchlights.

Flying field—1,500 meters by 1,000 meters, level, well drained, good turf, good approaches from all directions except over hangars. An excellent four-way flying field for all types of planes.

Planes in commission—

Mitsubishi No. 1 pursuit planes	15
Mitsubishi No. 4 torpedo planes	6
Yokosuka seaplane (old type)	1
Total	22

Notes: This station is 4 years old.

Serious accidents have caused six deaths since the station was started. There have been no deaths during the last year. A shrine has been erected in one corner of the parade ground to the memory of aviators who have lost their lives in accidents.

The torpedo plane squadron has been recently formed, and since no torpedoes have arrived, actual drops have not been made.

The pursuit squadron carries on gunnery training, formation flying, cross-country flying, and acrobatic flying.

All major plane repair work is done at Sasebo aircraft depot.

The Yokosuka seaplane is used for transportation trips to Sasebo.

The pursuit squadron is the only squadron observed which is practically up to strength of 16 planes.

Pilots here average 15 hours flying per month.

All personnel seemed keen, the station was exceptionally clean and shipshape and gave the appearance of being a very efficient operating station, and is capable of enlargement to almost any size for use as either land or sea plane station.

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6. New regulations governing naval aviation department.

ARTICLE 1. The naval aviation department shall have cognizance of the following:

(1) The design, inspection, and repair of aircraft and armaments pertaining thereto. The design and inspection of equipment for aircraft carried on shipboard.

(2) The design and inspection of equipment for aircraft factories and aircraft armament factories in naval establishments.

(3) Education and training of aviation personnel.

(4) Education and training of officers and enlisted men of the ordnance corps detailed to aviation duty.

(5) All matters pertaining to naval aviation other than mentioned in foregoing paragraphs.

ART. 2. The naval aviation department shall comprise the following divisions: General; training; technical. The designation of the duties of these divisions shall be made by the minister of marine.

ART. 3. The naval aviation department shall be provided with the following personnel: Chief of department; directors of divisions; officers assigned to divisions; officers attached. In case of necessity additional officers or civilian experts may be assigned to duty in this department.

ART. 4. The chief of the department is charged with its administration, under the direction of the minister of the navy.

ART. 5. The chief of the department may make changes in the assignments of officers within the department to care for vocancies or other contingencies which may arise.

ART. 6. In case the office of chief of the department is vacant, or in case of the authorized absence of the chief of the department, the subordinate officers of the department shall act in accordance with seniority until the minister of the navy especially designates a particular subordinate to act.

ART. 7. The directors of division shall supervise the work of their respective divisions under the general direction of the chief of department. The director of the general division shall act as assistant chief of department.

ART. 8. Officers assigned to divisions shall discharge their duties under the direction of their superiors.

ART. 9. The naval aviation department may employ civilians of the Hannin (lower) rank.

ART. 10. Officers attached shall comprise warrant officers, special service officers, and civilians of Hannin rank. They shall discharge their duties under the direction of their superiors.

ART. 11. Additional officers or civilian experts assigned to this department shall discharge their duties under the direction of their superiors.

7. *Aeronautical notes.*

a. DENIAL BY ARMY OF REPORT OF PURCHASE OF FRENCH PLANES

A recent press telegram from Paris to the New York Times stated that Japan had bought 172 airplanes from France in the past 24 months. This dispatch was transmitted to Tokyo and appeared in the local press. The Asahi newspaper of Tokyo interviewed the army authorities to ascertain the correctness of this statement. The reply of the war department, published in the Tokyo Asahi of March 14, was as follows:

It is true that we bought Salmsom airplanes from France seven or eight years ago; but we have purchased none since that time nor have we any existing contract for purchase at the present time. To-day, thanks to our industries, we have no need to purchase airplane bodies from any foreign country.

In regard to the French type of flying boat reported to be the best in the world, it is rumored that our navy intends to procure several for experimental purposes. However, this rumor is very likely groundless. The Paris telegram was probably sent for propaganda purposes at the instance of the air service expansionists led by General Mitchell.

b. JAPANESE TYPE DORNIER PLANE COMPLETED

A Japanese type all-metal monoplane heavy Dornier bomber has been manufactured by the technical branch of the army air department at Tokorozawa. This plane is an experimental one manufactured by the army for the purpose of ascertaining whether it will be a suitable type for supply to the newly created seventh regiment of air service at Mikatagahara, which is a bombing regiment and for which no prescribed type of bomber has yet been adopted.

The maiden trial trip of this plane was made on February 23 between Tokorozawa and Mikatagahara. During the flight the plane flew into a gale. Several passengers besides the pilot were carried. The trial trip was made without accident.

c. AIR TUNNEL

An air tunnel of the most modern design is now in course of construction at the Komaba Field by the Imperial University of Tokyo. The tunnel house covers an area of about 17,000 square feet and is of two stories of reinforced concrete. The work is expected to be completed by the end of July, 1927. Upon completion the building

will be available for use by military planes whenever the occasion requires.

d. STATEMENT OF NAVAL MINISTER IN REGARD TO AMALGAMATION OF ARMY AND NAVY AIR SERVICES

Replying to interpellations in the Diet on March 18, Admiral Takarabe, Minister of the Navy, made the statement that the authorities have no intention of affecting an amalgamation of the army and navy air services.

e. NAVAL AVIATION HEADQUARTERS

The sum of 47,000 yen having been appropriated by the present Diet for the establishment of a naval aviation headquarters similar to that of the army air service, steps are now being taken to bring this headquarters into existence. The sum appropriated is too small to do more than to make some increase in personnel of the naval officers assigned to duty with naval aviation administration and to create the different sections of the new headquarters. These sections will be three in number, namely, the general affairs section, the training section, and the technical section. These sections will take over the duties formerly exercised in regard to naval aviation by the naval affairs bureau, the educational bureau, and the construction service of the navy department.

The chief of the navy aviation headquarters will be Vice Admiral Yeisuke Yamamoto, now on the navy general staff, while the chiefs of the training and technical sections will be Rear Admirals Furukawa and Usui, respectively.

This headquarters will be further expanded in 1928, the estimates for which, involving about 100,000 yen, will be introduced into the Diet at its next session.

f. NEW CIVILIAN AVIATION LAW

The newly legislated aviation law will be promulgated toward the end of this month with effect from the beginning of June.

According to this new law, two sorts of licenses will be specified for civilian aviators, one being the aviator's license, and the other the pilot's license.

Hitherto civilian aviators who have once secured licenses have been entitled to fly even after a long period of suspended practice. This, however, being undesirable, under the new regulations a special pilot's certificate will be issued in addition to the ordinary aviator's license. Such certificates will be valid for a period of six months, after the expiration of which they will be reissued to those aviators

who qualify therefor after a regular flying examination. No aviator who does not possess a pilot's certificate will be permitted to fly.

g. ARMY EXERCISES

(1) *Combat exercise.*—A joint air combat practice by machines of the Akenogahara Army Air School and of the First, Second, Third, and Fifth Army Air Regiments was held over the region centered on the Kagamigahara airdrome, the station of the First and Second Air Regiments, for three days recently. The participating machines were 16 A–4 fighters of the Akeno School, 10 A–4 fighters of the First Regiment, 3 A–4 fighters of the Second Regiment, 6 B–1 reconnaissance planes of the Second Air Regiment, and 3 B–1 reconnaissance planes of the Fifth Air Regiment. The practice was held under the guidance of Lieutenant De Furneau, the French instructor employed at the Akeno School. This is the first occasion on which a combat exercise on such a large and practical scale has ever been held in Japan.

(2) *Flying by compass.*—The Second Air Regiment at Kagamigahara carried out cross-country flying by means of a precise compass between Kagamigahara and Okayama. Led by a machine operated by a sergeant with a lieutenant as passenger, six planes in all got away between 7 and 9 a. m. In nearly two hours and a half they reached Okayama safely. After a short rest they left that place at 11.30 a. m. in the order that they had arrived. A favorable wind prevailing, the leading machine operated by the aforesaid sergeant came back to Kagamigahara in about an hour, followed by the rest, except two, one piloted by a sergeant major and the other by a special sergeant major.

The Fifth Air Regiment at Tachikawa had formed a plan for cross-country compass flying between Tachikawa and Kagamigahara for four days. Four reconnaissance machines, operated by two lieutenants and two special sergeants major, reached Kagamigahara one after another about noon. Passing the night there, they flew back to Tachikawa at 10 a. m.

(3) *Long-distance flights.*—Four B–1 reconnaissance machines of the Fourth and Eighth Regiments left the Tachiarai airdrome, in Kyushu, to make a long-distance flight to Tachikawa at 7 a. m. on March 5. On the way they landed at Yokaichi at 11.20 a. m., left that place at 3 p. m., and passed over Hamamatsu at 4 p. m., flying in echelon. As it happened, however, a low temperature and a heavy air current prevailed in the sky east of Shizuoka and interfered in the machines following their course. They had to continue a difficult flight. Two of them, No. 1013 (pilot, a lieutenant; passenger, a special sergeant major) and No. 1093 (pilot, a sergeant major; pas-

senger, a captain), kept on flying low in the twilight of evening for upward of three hours and successfully landed at the Tachikawa airdrome at 6.40 p. m., having flown over a distance of 590 miles. The other two made forced landings, one (pilot, second lieutenant; passenger, sergeant major) on the dry bed of the River Tama, near Moborito, about 6 p. m., and the other (pilot, special sergeant major; passenger, second lieutenant) in the offing of Tsushima about 7 p. m.

The return trip was started on March 12 by only one of the four machines, the other three having been so badly damaged as to prevent their return at that time. The machine which started back left Tachikawa on the 12th. On the way, however, it made a forced landing at Hamamatsu. It then proceeded to Yokaichi, where it stopped. On the morning of the 14th it again made a forced landing, owing to engine trouble. It was to get away on the 15th, but it could not leave the ground, so it was decided to disassemble it and send it back to Tachiarai. Thus the flight proved a failure, none of the four machines completing the round rip.

(4) *Flight in snowstorm.*—The Tokorozawa-Kagamigahara round trip graduation flight by pilotage students of the Tokorozawa Army Flying School took place recently, employing B–1 reconnaissance machines. At 8 a. m. eight planes operated by lieutenant pilot students left Tokorozawa, flying in echelon. On the way they were overtaken by a heavy snowstorm with a high wind. About 11.20 a. m. two planes made forced landings on the Mitagahara field. The whereabouts of the other six machines remained unknown for some time. But, as a matter of fact, they were laboring on in the teeth of the snowstorm, and all arrived safely at Kagamigahara about 6 p. m.

(5) *Antiaircraft practice.*—The first joint air and cross-country practice ever had between the Seventh Air Regiment at Mikatagahara and the Antiaircraft Gun Regiment at Toyohashi is to be carried out soon between Mikatagahara and Toyochashi, lasting for three days; the director being Major Inoshita, chief of the training branch, and the airplanes used being No. 15 of the type D–2 (bomber) and Nos. 634 and 635 of the type B–1 (reconnaissance machines). The situation assumed is the defense by the antiaircraft gun regiment against the attempt of the air regiment to attack and bomb the city of Toyohashi. The commander and other officers and noncommissioned officers of the latter regiment are all to go up by turns.

(h) NAVAL EXERCISES

Circuit of Kyushu.—(1) Five fighters of the Omura naval air group started on a circuit of Kyushu recently. About 8 a. m. one of the machines experienced trouble in the body and crashed into the

sea in Saga Prefecture, but the pilot was uninjured. One of the other planes went back to Omura to report the accident. The rest, three machines, continued the flight and proceeded to Kagoshima after landing and refueling at Kokura.

(2) The Kasumigaura naval air group carried out night flying by moonlight recently, commencing at 5 p. m. on each day. A land-raiding machine was employed on the first day, carrying a lieutenant commander as pilot and two others, both of whom were bombing-section leaders. Noctural observations were taken of heavenly bodies—the first essay of the kind in Japan. For the observation, a double sextant (air-bubble sextant) was used.

C. MISCELLANEOUS

1. Newspaper comment on Arms Conference.

[From Tokyo Asahi]

The following is the opinion of a high naval authority on the Geneva conference:

The fact that we are sending Admiral Saito shows how seriously we are taking the Conference. Admiral Saito himself is deeply interested. Such being the case, we expect that the Conference will be attended with success.

Under the present circumstances, it is advisable for Japan to remain passive, and it is hardly expected that Japan will present proposals herself.

England, by reason of nonparticipation of France and Italy, may ask for exceptions to meet a case where those countries begin to build large numbers of ships. In the latter case, it might be expected that Japan would ask for reconvening of the Conference.

In the coming Conference we do not expect a proposal for scrapping existing ships, as was the case at the Washington Conference. England has already made known that she has no idea of scrapping any of hers. For our part, we have repeatedly stated that we consider our present establishment as the minimum limit from the viewpoint of national defense, and there is no reason why we alone should scrap anything as long as no decisive changes are effected in the programs of England and the United States.

After all the only accomplishment of the conference may be agreements on programs after 1931, when the holiday of the Washington treaty will have expired.

NOTE.—Admiral Saito, senior Japanese delegate, is a naval officer by profession, a former minister of the navy, and at present, Governor-General of Korea.—Ed.

[From Osaka Mainichi]

The purpose of the limitation or reduction of armaments is to safeguard the peace of the world and to relieve peoples from the burden of military expenditures. The movement is right in principle, but limitation or reduction is asked because competition in the expansion of warlike preparations has long been going on in the field of inter-

national politics. For this reason we call the ideal of disarmament inconsistent. The time is not yet ripe for the realization of complete disarmament, to our regret, but efforts have to be made for making war-like preparations unnecessary. For this purpose causes for disputes must be eradicated so that a community of nations may be brought about. With causes for war eliminated, the upkeep of large standing forces will become unnecessary and the nations of the world will thus be enabled to limit their standing strength or to reduce the number of their combatants. We eagerly hope that Admiral Saito and his suite will exert their best efforts at the Geneva Conference for the promotion of good understanding among Japan, the United States, Great Britain, and other nations.

There is a nation which seeks by furtive means to find an opportunity for overpowering other States in matters of military defense, although it tries to make itself appear the only champion of the disarmament movement. Once the Conference be wrongly used for such a questionable purpose, ardor for military limitation will be broken down. We are confident that the chief delegate will take due precautions to restrain such a nation from carrying matters with a high hand.

Another question of importance is the limitation or reduction of auxiliary ships. This will not be successful because of refusal by France and Italy to participate in the discussion. We took an occasion to insist that the ratio of 5–4–4 is best for the practical purpose and applicable to the navies of Japan, the United States, and Great Britain. Referring to the nonrepresentation of France and Italy, one opinion urges the cooperation of these three navies against the contingent provocation by nonparticipants, but the conclusion of a treaty for such a purpose is impracticable. The United States will probably work out a flexible plan in accordance with need for the establishment of a definite ratio for the three nations concerned, but as the application of 5–5–3 is no longer feasible, the promotor may be persuaded to be content with the limitation to the fullest practicable extent.

If an opportunity presents itself at the Geneva Conference, we desire that Viscount Saito will use his influence for the examination of a movement seeking the total abolition of capital ships, a prolonged term for their substitution, the adoption of a smaller type, the abandonment of naval bases at Singapore and Pearl Harbor. Capital ships are main armaments for attack, but their construction requires a considerable sum of ¥70,000,000 to ¥80,000,000. So the abolition of this class is desired, but the difficulties are only too obvious. The United States will absolutely object to the proposal if made, because France and Italy will be free to increase the number of capital ships.

NOTE.—See the Special Article section of this Bulletin.—Ed.

2. New railways in Korea.

The recent Diet passed the railroad bill submitted by the Government General of Korea, carrying with it an appropriation of ¥330,000,000 for the completion of Korean railways. This amount is to be spread over 12 years, the appropriation for the coming fiscal year being ¥35,000,000. Not only are new railways to be constructed, but certain private, narrow-gauge lines will be taken over and reconstructed with standard gauge.

The new construction is primarily for economic purposes, as the Tomon line will develop the coal fields of northern Korea; the Keizan line will carry lumber from the mountain regions of Kanko Province to ports in the Sea of Japan; while the Tokai line will develop coal mines in the district through which it runs.

However, the development of the Korean railway net, especially if made in conjunction with the building of the Kirin-Kainei line, will have considerable strategic as well as economic importance.

It is well understood that in time of war Japan must make the Japan Sea its own "pond," in order that there may be an uninterrupted flow of foodstuffs, iron, coal, etc., from the Asiatic mainland to the home country. It is probable that this could be done, as it would be extremely difficult even for submarines to enter the Japan Sea. The Yellow Sea, however, is a different matter, and any shipping in that sea would be exposed, to some degree at least, to interference by enemy submarines, or possibly other war craft. Therefore lines of supply across the Japan Sea are of great importance, and railroads from the interior to points on the Japan Sea immediately assume more than a mere economic aspect.

Even across the Japan Sea there are alternative lines, and an attempt is being made to shorten those lines as much as possible. For example, any supplies coming from the Kirin district in Manchuria, at present, must be shipped by the South Manchurian Railroad to Mukden, then to Keijo and Fusan, thence to ships and Japanese railroads to Osaka, a distance of about 2,400 miles. Should the Kirin-Nanei line be completed, the distance from Kirin to Osaka via Seishin is only 900 miles.

The Japanese Government obtained the right to construct the Kirin-Kanei line several years ago. The line is to be about 270 miles long, and the work on the first 130 miles, Kirin-Tunhua has already been started. Whether the road will be completed to Kanei or not, and if so, when, does not seem to be at all clear. Strategically, the road is of the highest importance to Japan, and it would have a high economic value as well. Should it be built, however, it would cause considerable financial loss to the South Manchuria Railway, as it would divert a large amount of freight from the latter

railway. This factor seems to be holding up the completion of the road at present, but it seems probable that strategical considerations will eventually win out.

The question of a terminal port in Korea is one of considerable interest. At present the port of Seishin is the terminus of the Kanei-Seishin line. Although considerable money has already been spent on harbor works at this port, it is not now, nor can it be made into, a good port. However, about 40 miles north of Seishin, there is a bay called Rashin Bay (Kornirof Bay), which has most of the qualifications necessary for a good port. The mouth of the harbor is almost closed by two islands, being deep enough for large vessels to navigate. There is from 7 to 10 fathoms of water with a sandy bottom, the bay extending about 2½ miles from east to west and 7½ miles from north to south. In improving this harbor, no breakwater would be required, and the total cost of all necessary shore installations, including wharves, is estimated at not exceeding ¥10,000,000. This harbor is ice free throughout the entire year.

The port of Rashin is ideally located for communication with Japanese ports on the Japan Sea. To Otaru, Hakodate, Funakawa, Niikata, Tsugaru, Maizuru, Sakai, and Hamada, the distance averages only 470 miles. Freight originating in Harbin, for example, destined for the main island of Japan, would travel about 150 miles on Japanese Government railways, about 470 miles by steamer, and 500 miles by Manchurian railways, approximately 1,100 miles. At present, via Darien, such freight would have to travel about 350 miles on Japanese Government railways, 870 miles by steamer, and 585 miles by Manchurian railways, making a total of about 1,800 miles, some 700 miles more than via Rashin. With so many natural advantages, it seems rather certain that Rashin will be developed as a port, and that it will become the terminus of a railway leading into Manchuria.

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3. Financial difficulties and change of government.

[Source: M. I. D.]

The long expected financial crash has come in Japan and, simultaneously with the resultant economic turmoil, a new cabinet has taken the wheel.

Japanese business and banking never fully appreciated the necessity of extensive deflation after the great prosperity of the World War. There was some readjustment, but not enough. The second great trouble came with the earthquake of September 1, 1923, when there were tremendous economic losses and the banks were called upon to make heavy loans, many of them with little or no security. These

loans are coming due and, in general, will have to be extended; in many cases even the interest can not be collected. There have also been many very poor investments by even the largest companies. For example, there appears to have been spent perhaps 25,000,000 yen on the Candidius Power Development of Formosa. This has been entirely abandoned, and is now being dismantled. A fourth reason for the present financial troubles is that Japanese companies insist on paying dividends far beyond sound reason. This is largely because of a sympathetic feeling toward investors who have their funds tied down and must have an income. As a result, companies have been declaring a dividend of as much as 10 per cent, while the books show a profit of only 2 per cent and practically no reserves.

About a month ago Japanese banks began to close their doors, and 8 or 10 with capital of nearly $100,000,000 would have failed except for the assistance of the Bank of Japan. Bills extending further credits to the Bank of Japan were then passed by the Diet. This was followed shortly with the startling announcement that Suzuki & Co. had suspended payments. This company is a large and important one with special interests in Formosan sugar. The excess of liabilities over assets appears to be about $100,000,000. As most of the loans to Suzuki had been made by the Taiwan Bank, which is really the Government bank of Formosa, this institution was so seriously involved that an appeal was made for government assistance, and the cabinet, in its effort to grant government aid, went beyond their legal limit according to the decision of the privy council.

The cabinet resigned at once. The Bank of Japan has come to the temporary relief of the Bank of Taiwan and matters are bridged over at least for the time being. Altogether nearly 30 banks found themselves in difficulties, were subject to heavy runs, and temporarily closed. At the same time, the Mitsui, Mitsubishi, Sumitomo, Yokohama Specie, and First Banks are reported to have been receiving heavy deposits. The new cabinet being confronted with the great emergency, declared a 21-day moratorium which has practically closed the exchanges and relieved the banks from payments for this period. In the interim, a five-day session of the Diet is being called to work out a plan of salvation.

The Japanese Government is very active in the country's banking. Though there may be local failures, the government will no doubt save the big bankers. Japanese bonds abroad at first showed a considerable slump and the yen fell 4 per cent in one day, but turned sharply upward again the following day. Confidence in Japanese Government finances appears to be but little shaken.

The Wakatsuki Cabinet, which came into power in January, 1926, and is a Kenseikai party creation, never has been popular for the

party, standing alone, never had a majority in the Diet and the cabinet was only able to exist by much bickering and scheming. There have been repeated rumors of the impending fall of the cabinet. While the resignation of the Premier and his cabinet occurred soon after the adverse decision of the privy council, this action may have been more of an excuse than an actual fact of force. In true Japanese fashion the only living Genro, Prince Saionji, was consulted, and General Baron Tanaka, head of the Seiyukai or leading opposition party, was directed by the Emperor to form a new cabinet. The Seiyukai Party also fails to have a majority, but, if by good fortune it can secure the support of the Seiyuhonto, an offshoot of the old party which has recently been allied with the Kenseika, it will have sufficient strength in the Diet. This support of the Seiyuhonto seems very doubtful. The new cabinet is a complete change, even the ministers of war, navy, and foreign affairs, who are nonparty men and frequently hold over, were changed.

Evidently in this serious situation it was thought that only a new broom would sweep clean.

The new cabinet consists of: Baron Tanaka, Premier; Dr. K. Suzuki, home affairs; Mr. K. Takahashi, finance; Admiral K. Okada, navy; Doctor Kadohara, justice; Mr. T. Yamamoto, agriculture; Mr. T. Nakahashi, commerce; Mr. K. Chizuki, communications; Mr. H. Ogawa, railways; Gen. Y. Shirakawa, war; Mr. C. Tsuchi, education. Premier Tanaka is temporarily acting as Minister of Foreign Affairs.

The relief of Baron Shidehara from the post of Foreign Minister is particularly regretted. He knew America very well, he had steered a safe and very sane course for his country's foreign affairs, he was popular in Japan and, all in all, he was one of the outstanding foreign ministers of his country.

In the new cabinet, Mr. Takahashi, formerly a Premier of Japan and head of the Seiyukai before General Tanaka, is a leading member. Four times prevously he has been Minister of Finance and he is perhaps the best man in Japan for the post, for he is a financial expert and his ambitions do not run higher than his position.

General Baron Tanaka deserves special mention. For 20 years he has been groomed for the post of Premier of Japan, and for 10 years his name has been frequently mentioned. He is an army Choshu clansman and the logical successor of both Prince Yamagata and Count Terauchi by whom he was trained. General Tanaka was born in 1863. In the army he rose to the position of full general in 1921. He was vice chief of the general staff from 1916 to 1918, when he became Minister of War. Owing to ill health, he resigned this

post in June, 1921, but refilled it again in the short-lived Yamamoto Cabinet in the fall of 1923. He was supreme military councillor for a time. General Tanaka early interested himself in the Service Men's Association which has nearly 3,000,000 members. He affiliated himself with the Seiyukai and became its leader in 1925. He has been accused of misuse of Government secret funds in the World War. He was also one of the leaders in a large company which invested the funds of retired officers and which failed.

General Tanaka is considered a good friend of America. He is very frank in discussions. When General Wood visited Japan in 1921, General Tanaka cultivated intimate acquaintanceship and discussion, and when he visited the Philippine Islands the following year he was granted the American distinguished service medal. General Wood, at that time, took his own medal from his breast and pinned it on General Tanaka. There is strong evidence that General Tanaka as Minister of War never really approved the very aggressive policy and action of the Japanese general staff in Siberia between 1918 and 1921. He repeatedly sought private discussion on Japanese-American, as well as Siberian questions, with the leading Americans in Japan. It is believed that the present cabinet will in no way change the policies of the Japanese Government toward the United States.

There is some indication of a change of policy toward China. General Tanaka, in one of his first speeches, attacked the former government's policy regarding China, characterizing it as almost a complete surrender of Japanese interests to the warring factions, and expressing his inability to understand the apathy of his government toward the activities of agents of the Soviet Government in China. He declared the problem in China of the utmost importance and urgency to Japan. He expressed sympathy for the legitimate aspirations of the Chinese people, stating that Japan desired to help them to be attained. But he emphasized that the Chinese must do their part and that the whole problem has a home aspect as well as a bearing with other nations with whom Japan desires to cooperate. He added that Japan, being vitally concerned with the preservation of peace in the Orient, can hardly remain indifferent to Communist activities in China, for she is so placed as to be directly and most deeply affected by the results of this activity, and concluded that he was confident that this stand will be well understood by Japan's friendly neighbor, Russia.

In spite of the words of the new Premier, it is uncertain whether the policy of the former cabinet toward China will be materially altered by the new men in power.

4. Economic estimate.

[Source: M. I. D.]

GENERAL ECONOMIC CHARACTERISTICS AND IMPORTANCE

In Japan the scarcity of raw materials, with the exception of food, is the greatest handicap to economic independence. Japan is largely an agricultural country, although she is developing her natural powers more and more and will continue to industrialize. In this development she not only is working extremely poor and unprofitable fields for raw materials at home, but making tremendous efforts to control the supply in neighboring countries. Man power long having been far cheaper than machinery, such industries as silk, tea growing, and cotton spinning have been greatly developed. With government control or assistance, Japan has acquired an excellent transportation system, a large merchant marine, and a complete communication net. Per capita wealth is only about one-eighth that of the United States, so that the burdens of living and taxation fall extremely heavily upon all classes.

ECONOMIC PENETRATION OF FOREIGN INTERESTS

Japan is peculiarly free from economic penetration and encroachment on the part of alien powers. This has been due to strict governmental control directly through ownership of many of the large interests and indirectly by means of subsidies and protective tariffs favoring Japanese concerns. Great distance from other industrial countries has also favored Japan. There are no strictly foreign companies with large capital investments in Japanese business (industries, raw material exploitation, and finance). There are, however, in the electrical field three large firms (two American and one German), which have amalgamated with Japanese companies. A new land law, effective November 10, 1926, permits foreigners of reciprocating countries to own land in Japan, except in fortified areas. Citizens of a state (part of a country) discriminating against Japanese ownership may be barred from ownership in Japan.

PRINCIPAL ECONOMIC INTERESTS OF NATIONALS IN FOREIGN COUNTRIES

Japanese penetration, economically, of neighboring territory on the Asiatic Mainland has progressed rapidly. The iron production of China is practically controlled by Japan and likewise a considerable percentage of the coal output and a large number of textile plants. Japan's economic control of south Manchuria is practically complete, and through agreement with Russia she expects to develop

the oil and coal deposits in northern Saghalien. She is also putting out feelers for possible oil supplies in other portions of the world, notably Mexico, Rumania, and Persia. Japan has large interests in fisheries on the Siberian coast and in mining and lumber concessions in Siberia. The Japanese agricultural interests in California were very extensive, but by virtue of the alien land law passed in 1920 and upheld by the United States Supreme Court, no Japanese can own land in California. The law does not deprive Japanese of land obtained before that date. Native and Hawaiian-born Japanese number about 40 per cent of the Hawaiian population.

BEARING OF ECONOMIC SITUATION ON INTERNATIONAL POLITICAL SITUATION

The international policy of Japan has been very largely based on the acquisition of raw materials in which a scarcity existed within the Empire. The natural limitations in raw materials have been evident to the Government for a number of years, and hence the whole policy has been to obtain these materials by any means necessary and wherever they might be found. The iron, beans, and coal of Manchuria and the iron, cotton, and wool of other parts of China are greatly coveted. Japan held northern Saghalien until an economic agreement with Russia gave her practical control of the oil and coal fields there.

The earthquake made great financial readjustments necessary, and further, to meet foreign sterling loans at 4½ per cent due in 1924, Japan had to place in England and the United States loans for several hundred million dollars costing her about 7½ per cent interest

Undoubtedly, the economic situation in Japan was affected favorably by the Washington Disarmament Conference, and the need of economic retrenchment will most likely have a strong bearing on any similar conference in the future. Japan is not in condition financially to wage an expensive war against a first-class power. In any big war she must borrow money abroad and only Great Britain and the United States are in a position to loan her money. With the fear of a war with Russia increasingly present, the need of friendly Anglo-Saxon countries is more and more apparent. Japan appreciates the power of the Chinese boycott and the loss of trade with China would be a great disaster. The watchful waiting policy of Japan in China, so different from that before the Washington Conference, has been adopted of recent years because Japan is willing to bear insult rather than suffer possible severe economic loss at the hands of an unfriendly neighbor on whom her trade greatly depends.

To assist Japanese industries, as well as to raise revenue, Japan now has a 100 per cent luxury tax on nearly all imported foreign-made commodities for home and personal use. The result has been a slight revenue for the government but great financial embarrassment for the foreigner living in Japan.

The rapid increase in population and the difficulty of living in Japan, together with the great economic prosperity of the Japanese laborer in foreign countries, has had much to do with certain recent international disagreements, particularly with America. Japanese laborers, for economic as well as racial reasons, are debarred from entering Australia and the United States and can enter Canada only in very small numbers. While Japan has had to accept these restrictions, she feels that her people should not be discriminated against. Though unlikely to discuss the question officially at an early date, the underlying resentment of the Japanese people on this score could easily be fanned into white heat against the "offending" powers.

Trade relations make for friendship between Japan and the United States. Over 35 per cent of Japan's trade is with the United States and if we consider the conversion of a great supply of raw cotton into textiles, and other uses of our raw or semicompleted products which go to make up a large part of Japan's exports, we may say that Japan's trade is nearly 50 per cent dependent upon the United States to-day. Moreover, silk, a nonessential, is of greatest importance commercially to Japan. More than one-third of Japan's total exports by value is raw silk, and the United States buys over 90 per cent of this. Any economic boycott by Japan against the United States would hurt Japan far more than America, and an American boycott of Japan's silk would cause great suffering in Japan.

GENERAL CONCLUSIONS

In a résumé of the economic conditions in Japan, the scarcity of raw materials, with the exception of food, appears to be the greatest handicap to economic independence. The manufacturing capacity of the nation is at present limited by scarcity of skilled labor, but this might be overcome with further training and experience industrially. A supply of raw materials for the manufacturers, however, is here again the most important problem for solution. The transportation system as well as all communications are government controlled. Transportation facilities are adequate with the exception of highways and motorized transport. In shipping, Japan has advanced in a comparatively short period from a position of insignificance commercially to one of the largest maritime powers. The larger banking businesses are governmental institutions and most of the large individual business concerns are subsidized by the gov-

ernment. Therefore, if Japan can obtain all raw materials necessary, her industrial expansion will continue, although at a slow rate. Only by a proper utilization of her abundant cheap power and labor can she find employment for her surplus population for an indefinite time. Economically, Japan desires peace, particularly for the time being or until more fully recovered from the great earthquake, until a self-sustaining industrial development has been made and until sufficient supplies of strategic raw materials have been obtained either by actual possession of sources or accumulated reserve. She desires peace, especially with the United States and China, which are her greatest markets and her principal sources of raw material supply. In spite of great economic difficulties facing Japan, the government is sound financially and will see to it that banking and business in general does not fail.

LATVIA

A. NAVAL

1. Naval vessels under construction.

The gunboat *Virsaitis* (525 tons, formerly a German mine sweeper) has visited St. Nazaire with a crew for the vessels under construction in France for the Latvian Government, viz:

Viersturs, gunboat, 170 tons.

Ronis, submarine, 400 tons.

Spinandola, submarine, 400 tons.

Imanta, gunboat and mine sweeper; displacement, 255 tons; maximum speed, 14 knots.

NETHERLANDS

A. MISCELLANEOUS

1. The Dutch-Belgian treaty.

[Source: M. I. D.]

The Dutch-Belgian treaty of April 3, 1925, has been rejected by the Dutch First Chamber by a vote of 33 to 17. The favorable majority in the Second Chamber was so narrow, 50 to 47, that no attempt at compromise between the two Chambers is likely. Foreign Minister van Karnebeek, who negotiated the treaty, is reported as having resigned. The Belgians are understood to feel the Dutch rebuff so keenly that they will refrain from further attempts to parley with The Hague, but will take up with the signatories of the Versailles

treaty the question of the Scheldt River which is one of the chief points at issue.

The status of the Western Scheldt (Escaut) is an item of unfinished business from the great war, giving the treaty more than ordinary interest. The peace conferees at Paris in 1919 heard not unsympathetically the Belgian demand for the internationalization of the Scheldt, but since there were canal matters also to be adjusted it was decided to leave the question for private adjustment between the two countries concerned.

Indirectly, the Scheldt problem dates back to the Dutch fight for religious liberty against Philip II of Spain, when the treaty of Westphalia in 1648 sealed the victory of Holland over Spain. Thereby Antwerp was cut off from the sea by closing the river Scheldt, and Amsterdam's privileged commercial position was maintained. Directly, it is linked, first, to the formation of the Kingdom of the Netherlands by the five big powers—Great Britain, France, Russia, Prussia, and Austria—in 1814–15, following Napoleon's defeat, after which the Scheldt was unbarred, and second, to the separation of Belgium from Holland consummated by the treaty of Paris of 1839. This treaty regulated the question of the Scheldt and imposed upon Holland certain obligations which latterly have not been fully carried out. Negotiations for a settlement in 1920 fell through because the Belgians, with war experiences fresh in mind, rashly urged the annexation of Dutch Limburg as a protection against possible future German attack. Later events have quieted Belgian aspirations in this direction; and the Wielingen Channel question, another moot point in 1920, was also wisely left out of the discussion leading to the present treaty.

A glance at the map of these two countries, veined as they are with great rivers flowing without regard to political boundaries, will show the necessity of agreement and compromise; and the situation is complicated further by the many canals which depend upon these rivers for their water supply. The Scheldt, as already indicated, is the most acute of these problems, because it involves the prosperity, almost the very existence of the great Belgian port of Antwerp, which in 1924 ranked second in the world only to the Port of London in point of tonnage. A few miles below the city the river enters Dutch territory whence it makes its way to the sea in three channels. The southernmost of these is the famous Wielingen Pass beginning some 4 miles to the east of the Zwyn which forms the end of the Holland-Belgian land frontier.

The treaty of 1839, dictated by the great powers, made Antwerp an exclusively commercial port. It also required Holland to dredge the Scheldt in the part which lies wholly in Dutch territory, an important provision in view of the erratic nature of the river bed

in that area and the increasing size of ships. Latterly, it has became more and more difficult to get the Dutch to attend to this properly, or even to allow Belgium to have the work done, with the result that the largest vessels can not ascend to Antwerp and craft frequently run aground during heavy fogs.

The treaty of 1839 also conceded to Belgium the right to construct a canal to connect the Scheldt, Meuse, and Rhine Rivers, to joint directorate of control of Belgians and Hollanders who could act in urgent cases without consulting the respective governments.

The treaty of 1839 also conceded to Belgium the right to construct a canal to connect the Scheldt, Meuse, and Rhine Rivers, to cross Dutch Limburg, but in 1873 Belgium chose instead to build a railway over this route. In 1911 Holland consented to the digging of a canal to intercept the Rhine near Ruhrort which is in the heart of Germany's great industrial area of the Ruhr; and this was recapitulated in the 1925 agreement.

The rejected treaty likewise stipulated the digging of a canal to connect Antwerp with the Holland Deep near Moerdyk, each country to pay the cost of construction on its own territory. This clause, an adaptation of provisions of the 1839 treaty never successfully carried out by the Dutch, would have placed Antwerp in direct connection with the Rhine as well as with Rotterdam, a rival Dutch port.

Another provision of the treaty permitted Belgium to widen and deepen certain canals which take water from the Meuse at Maastricht in Dutch Limburg. The successful carrying out of this clause would have required the Dutch to enlarge the Zuid Willemsvaart canal in their territory so that the larger barges could pass into Belgian streams.

Objections to the treaty appear to rest almost wholly with Holland and are both economic and military. The Province of Zeeland is particularly opposed to surrendering Dutch control of the Scheldt, because any interference with the unaccountable river's bed is likely to endanger the dikes upon which the Dutch have spent untold sums in their struggle of centuries against the encroaching enemy. The Dutch therefore object to giving to an independent directorate the unlimited right to consider shipping interests first of all.

The treaty of 1925 abrogated the contrary article of 1839 and provided for the opening of the port of Antwerp to warships. True, the Belgians have no navy now and are not soon likely to have, but they are alleged to have a secret treaty with France which, the Dutch think, may provide for the transfer of French war vessels to the Belgian flag on short notice. Furthermore, under this treaty Holland, as a neutral, would be obliged to open the Scheldt to the craft of

other nations and of necessity might become an unwilling belligerent. The extremists among the Dutch also have not forgotten that Napoleon attempted to make Antwerp a naval base for his attack against England; and Holland is England's friend.

Commercial fears and jealousy have even a larger part in the Dutch objections to the canal provisions. Many feel that an improved access to the sea for Antwerp would endanger the prosperity of Rotterdam. They even have fears for Amsterdam, as this port's canal connection with the North Sea is quite inferior to the proposed Antwerp-Moerdyk Canal. Naturally, they are averse to taking the Dutch taxpayers' money to promote such disastrous potentialities. There was also the possibility that the Antwerp-Ruhrort Canal would have diverted Limburg coal to Antwerp and that Rhine barges would have taken the shorter route to the sea by this canal rather than by Rotterdam and Amsterdam. Similar objections are advanced against the required enlargement of the Zuid Willemsvaart.

The Dutch protagonists of the treaty claimed it was but a restatement of a large part of the treaty of 1839. They pointed out that a refusal to ratify would doubtless prompt the Belgians to renew their demand for the internationalization of the Scheldt. They believed that Rotterdam and Holland generally would share with Belgium the benefits of improved canal communications and that the Dutch and Belgian ports have common interests as opposed to the French and German ports. A good many, of whom Foreign Minister van Karnebeek was the chief, stressed the necessity of clearing up the questions so long in dispute and particularly the desirability of good relations between two small countries so strategically placed.

The exact outcome of the deadlock can not be forecast at this time; but a peaceful solution may be expected since both countries follow a policy of compromise and cooperation in foreign affairs.

POLAND

A. NAVAL

1. Building program.

The following is a résumé of the actual program of naval construction under way for Poland:

DESTROYERS

The two destroyers, *Burza* and *Wicher*, are now under construction. They were laid down in October, 1926, and January, 1927, respectively; displacement, 1,540 tons; speed, 32 knots; 31,000 horse-

power. Armament: Four 5.1-inch guns, two 1.5-inch antiaircraft guns, two 21-inch torpedo tubes, groups (triple). Crew, 155 men. Vessels under construction at Chantiers Navals Francais, in Caen, France. With the exception of a few slight differences, these vessels are similar to the French torpedo-boat destroyers of the *Simoun* class.

MINE-LAYING SUBMARINES

The three boats, *Zbik*, *Rys*, and *Wilk*, which were ordered last January, are now under construction. Displacement, 980/1,250 tons; machinery, 2 Diesel engines of 900 horsepower each. Armament: One 4-inch gun, one 1.5-inch antiaircraft gun, six 21-inch torpedo tubes, 10 torpedoes, 40 mines. Crew, 46 men. Under construction at the Chantiers Navals, in Caen, the Chantiers de la Loire, in Nantes, and the Chantiers Normands, in Le Havre. These are similar to the French *Caiman* class.

RIVER GUNBOATS

The two gunboats *Wilno* and *Krakow* were put into commission October 31, 1926. Displacement, 70 tons; speed, 9 knots; machinery, 2 Diesel motors of 120 horsepower each. Armament: One 4-inch gun, two 3-inch antiaircraft guns, 3 machine guns. Constructed at the Zieleniewski Yards, Kraukau. Two more vessels of the same type are now under construction at the same yards. It is possible that there are six submarines of a smaller type now under construction in France, but there is no definite information as yet regarding them.

A. MISCELLANEOUS

1. German view of Polish foreign relations.

[Source: Berlin Vossische Zeitung]

About 20 Polish parliamentarians are visiting Paris at the present moment. The eloquence of the Polish press on the subject of the dinners and toasts offered to them in the French capital pursues the evident object of proving that the Polish-French alliance is as strong as ever and that these two "threatened" nations are closely linked together by the common danger of German aggression. Dinners undoubtedly play a considerable part in contemporary politics, but in spite of this the obviously propagandistic visit of the Polish delegates can scarcely be expected to counteract the generally prevailing tendency toward a German-French agreement.

The policy of Locarno has been developed by Polish political parties along two opposite lines. The so-called Pilsudski party is

governed by pro-English sympathies inspired by the prospect of Poland's future importance as Great Britain's ally in the event of a rupture between Germany and Russia. The opposite party has no intention of being drawn into a conflict with Russia for the satisfaction of British interests. Their distrust of British policy and of the apparent advantages of a possible English loan are strengthened by the hope that the policy of Locarno, pacifism, and Briand will soon be swept aside by the rising tide of nationalism and "Mussolinism." Their object is the establishment of a modus vivendi with Russia and of a friendly agreement with France, in the hope that the French people will once again awaken to as clear a perception of the German danger as that entertained by themselves.

The official policy of the Government—or, rather, to speak more correctly, Marshal Pilsudski himself—stands in impenetrable silence between these two extreme parties, each of which endeavor to win him over to their side. The time is past when Poland followed obediently in the wake of the French political course. She is actually compelled by circumstances to a certain degree of independent action, but it is an open question whether the nature of that action will be determined by the dictates of the inscrutable Marshal Pilsudski or by the pro-British and anti-Russian tendencies of the Pilsudski party or by the pro-French and anti-German policy of the national democrats.

The same uncertainty reigns in the internal conditions of the country. A sharp conflict is being waged between the liberal and the reactionary parties and there seem to be equal chances that its issue will be decided by parliamentary majority or by dictatorship.

One point, however, is clear, namely, that the Russian question is the cardinal point of Poland's foreign and home policy. Much time and writing material is still being wasted over the German danger, the western menace, the threatened western frontiers, etc. But in spite of this every Polish politician realizes clearly that the one all-important factor is Russia and that all the anti-German declamations are nothing but the maneuvers of party demagogues. The prevailing tendency is toward the establishment of a modus vivendi with Germany, and the obstacles which still hinder its realization are nothing but the results of eight years of so-called nationalistic policy which mistook the temporary interests of France for the permanent interests of the country.

It remains to be seen whether the same mistake will not be repeated by the Pilsudski party with regard to the temporary interests of England in the Russian question. At present they seem very anxious to ingratiate themselves with Great Britain in all questions pertaining to the Anglo-Russian conflict. They profess a strong

desire to liberate the various nationalities living within the Russian boundaries on the plea that peace in the East can only be established under the condition that Ukrainia and Georgia are recognized as independent States and that Russia is confined to her ethnographical limits.

It may be presumed that Pilsudski is not averse to the principle of the anti-Russian buffer state, such as the Baltic League, the Lithuanian Union, etc., but he is decidedly unwilling to support the plans of active aggression against Russia entertained by the Pilsudski party. Whether his prudence is dictated by distrust of British policy or by fear of a premature conflict or by solicitude for the financial welfare of the country or by the restraining influence of France is a question which it is impossible to decide at the present moment.

The nationalistic parties are actually engaged in the endeavor to promote an official agreement with Russia containing a guaranty pact as well as a commercial contract. Considering, however, that the enmity between the two countries is equally sustained by the pro-Ukrainian emancipation schemes of the Pilsudski party, on the one hand, and by the repressive tactics of the nationalists against the Polish Ukrainians and the Ruthenians, on the other, there seems little reason to expect that the conclusion of an official agreement would put an end to the Russian Polish conflict.

NOTE.—Polish-German relations have been continually bad since the war, when Poland secured her "corridor" to the sea. This animosity was heightened in 1922 by the award of Upper Silesia to Poland. Germany has continually felt and stated that it was only a question of time until she would face Poland to return to her those territories containing a German population, thus re-uniting the eastern provinces with the Reich. By the Locarno agreements, Germany bound herself not to go to war with Poland on this question. During the last year German-Polish relations have gradually improved somewhat. As the above article states, Russia is Poland's "bête noir." French influence is still predominant in Poland.—Ed.

RUMANIA

A. NAVAL

1. New naval vessels.

Contracts have been let for the building of two destroyers for the Rumanian Government by the "Officine e Cantieri Napoletani C. & T. T. Pattison" in Naples. The keels will be laid shortly. Standard displacement, 1,785 tons; length at water line, 340 feet.

Also, a contract has been let with the "Cantieri Navali Triestini" of Trieste for the construction of one submarine for the Rumanian Government. It is expected that the keel will be laid in August,

1927. Surface displacement, 640 tons; submerged displacement, 815 tons; length at water line, 226 feet.

NOTE. Italian influence, with that of France, is predominant in Bucharest. The above naval contracts are the result of a recent loan by Italy to Rumania. Because of her acquirement of Bessarabia from Russia, Rumania is fearful of Russia and arms chiefly against her.—Ed.

RUSSIA

A. MILITARY

1. Defenses of Leningrad.

The war rôle ascribed to the Black Sea Fleet is very slight, the ships merely representing floating batteries which are to assist the coast batteries by furnishing increased protection to the mine fields. The only exception is in the case of the submarines which are to debouch into the Bosporus and perform guard duty in the straits.

Should a hostile fleet succeed in passing through the Bosporus into the Black Sea, the submarine flotilla will withdraw to Sevastopol. No independent action is foreseen for the Black Sea Fleet, not even against Rumania.

The "Lur" (fortified region of Leningrad) which formerly extended to the batteries of Martyschkino in the southern channel and to the island of Wenier in the north channel, has now been greatly enlarged. Apart from the coast defense of Leningrad, the Lur now includes a series of fortified zones which will protect the approach to Leningrad from the flanks, both from the Finnish as well as Estonian frontiers. On the Finnish side, new fortifications have been erected in the neighborhood of the villages Kamenka, Nowosselitzy, and Dibuny. These fortifications are of a semipermanent type and consist of three fortified lines which are well masked. The operative direction of the new fortifications is toward the northwest; that is, they are to protect the communications between the Sea of Sestroretzk and the railroad line Bjeloostrow-Leningrad. This region can best be designated as defense center, bridge head, and flank crossing. The defense center is located in the second line which is amply provided with cavernlike shelters and a comprehensive net of communications. The shelters are 19 feet in depth. The third line represents an artillery position. Work will be finished in June, 1927, and work along similar lines will then be begun on the Estonian frontier.

The new-equipment program for the fort of Cronstadt was approved by the revolutionary war council on July 15, 1926, and work was begun in August, 1926. The batteries on the north channel were

newly equipped, but the main forts on Kotlin Island were not touched. Work was begun on the batteries 9, 6, and 5, located between the Girskaja coast batteries and Fort Krasnoflotsky (Kotlin Island); each was equipped with four 12-inch guns and four 6-inch guns set up in the original positions, as the platforms were not in need of repair. The ammunition is conveyed hydraulically. These batteries have also been equipped with Zenit guns. The ammunition depots were repaired and made much deeper. No change was made in the smaller guns of the aforesaid batteries, as these guns only date from 1923. The wireless stations of these batteries also remain unaltered, the wave length being 610 meters, as heretofore. Each battery is equipped with an automatic receiver, with an efficiency of 12 combined signals. This apparatus is a new Russian invention, a product of the Nischny-Novgorod laboratory.

On the far side of the island there are small hangars for seaplanes, each capable of accommodating two planes.

SWEDEN

A. NAVAL

1. Naval debates.

Great effort is being made by the Conservative Party in Sweden to secure the passage of the proposed appropriation of 8,160,000 kroner for the building program. To date this struggle seems to have reached a draw, and a decision was recently made to postpone further discussion for a few weeks.

The scheme for the building program was outlined in the March Bulletin. In addition to the appropriations mentioned there, the present discussion includes the amounts granted from 1919. In 1919, 6,400,000 kroner was made available, and from 1920 to 1923 no appropriations were granted, but in 1922 there was a surplus from other naval funds amounting to 2,500,000 kroner which was authorized for expenditure on the building program. For the remaining years the amounts are as previously reported. Thus the actual amount made available from 1919 to the end of the fiscal year June 30, 1927, is 27,600,000 kroner, which at 3.73 kroner to the dollar amounts to $7,399,464.

One of the sources of difficulty connected with passing the amount requested this year is the efforts of the supporters of defense to change the building program to a 10-year period, 1928–1938, with an annual allowance for this purpose of 10,530,000 kroner. This change in legislation is not expected to pass.

A great deal of the argument centers about naval strength in the Baltic Sea, and in consequence numerous comparisons are made with the Russian naval strength. Some of these are submitted as of interest, especially as some of the data are taken from public utterances of the chief of the soviet fleet, R. Mulkievitj. The Conservatives have compiled the following for present combat strength (effective):

Tonnage

	Sweden	Russia
	Tons	*Tons*
Battleships	46,800	48,000
Crusiers	6,800	23,800
Torpedo boat	6,900	34,400
Destroyers		
	60,500	106,200

Naval guns

SWEDEN		RUSSIA	
11 inch	12	10 inch	4
8.3 inch	12	8 inch	8
4 inch	70	6 inch	15
4.7 inch	10	4.7 inch	72 (?)
3.4 inch	48	4 inch	70
2.2 inch	64	3.4 inch	12
12 inch	24		

Torpedo tubes

SWEDEN		RUSSIA	
21-inch	12	21-inch	42
18-inch	60	18-inch	148

Crews: Sweden, 4,600 men; Russia, 7,700 men.

Further effort is made to show the ratio of combat effectiveness. For number of ships fit for combat: Sweden to Russia as 1 to 1.25; artillery strength, 1 to 1.1; torpedo tubes, 1 to 2.65; personnel, 1 to 1.7.

At a later date calculated data was submitted showing the comparative strength of the Russian fleet at present to that in 1914. It reads as follows: If the figure 100 is assigned to the machinery equipment of the Russian fleet in 1914, this strength was reduced to 67.7 in 1924, but with the subsequent improvements and repairs this has now risen to 127 in 1927, even though the tonnage at present is less than in 1914. Similarly, comparing the total weight of projectiles that could be fired simultaneously by the Russian Baltic fleet, the value has risen from 100 in 1914 to 148.5 in 1927. The ammunition space available aboard ships is shown to have been increased from 100 in 1914 to 175 in 1927. The figures just indicated are used by the

Conservative Party to show the increase in strength of the Russian Baltic fleet.

On April 1, 1927, the Swedish Government authorized the navy department to scrap or sell two small motor boats (subchasers) *Nos. 1* and *2*, purchased from Italy in 1919.

The advocates of a stronger naval defense in Sweden also make a big point of the age of their ships, insisting that most of them are so old as to be obsolete.

NOTE.—It is interesting to observe that in the Baltic at present, there is an inland sea naval rivalry of great intensity. Russia and Sweden are the most active but practically all of the Baltic States are building submarines or other light craft. Russia is the immediate cause of practically all of these efforts. See May Bulletin for the report of the Swedish naval committee.—Ed.

SPECIAL ARTICLES

I. LIMITATION OF NAVAL ARMAMENT

The three-power conference for the limitation of naval armament met in Geneva on June 20 last. By the time this issue of the BULLETIN is distributed among the service the results of this conference may be known or, at least, can possibly be predicted. Nevertheless, it is thought that it might be interesting to give here a review of the steps leading up to this conference and to indicate the attitude of the powers previous to the conference.

With one exception, the Washington conference of 1921 was the first convocation which successfully limited naval armament. The conference was called by the President of the United States and Mr. Hughes, as chairman, submitted at the outset an extensive plan for the limitation of naval arms which was, in its principal features, finally adopted in treaty form. The 7 treaties and 13 resolutions emanating from this conference are well known and will not be dealt with here. It must be noted, however, that all treaties made at this conference were ratified by all powers signing and are now in effect with one important exception. The treaty "Relating to the use of submarines and noxious gases in warfare," although signed by the United States, Great Britain, Japan, Italy, and France, has never been ratified by France (and most likely never will be) and hence is not in effect. This treaty had the virtual effect of outlawing all submarine warfare against commerce.

There are now given notes on this conference, on the results attained therein, and the present attitude of the powers toward the results of the conference.

(*a*) Great Britain pressed very strongly for the abolition of submarines, but was as strongly opposed by France, who was openly seconded by Italy and Japan and tacitly by the United States.

(*b*) The conference placed no limit on submarine, destroyer, or cruiser tonnage, and only limited cruiser displacement to 10,000 standard tons and the maximum cruiser gun to 8 inches. The result of this has been that the signatory powers have, since 1922, been building up those classes of vessels not limited at Washington and have laid down numerous cruisers of the maximum displacement.

(*c*) France has continually felt that she was badly treated at the conference; she feels that her low ratio of capital ships makes her a secondary power; that Great Britain and the United States "railroaded" through a secretly prearranged program; and that she was made to appear as favoring inhuman warfare because she opposed the abolishment of submarines. She furthermore felt isolated at Washington as her continental allies were not present to support her. In this chagrin she determined that she would not again be caught in such a predicament. Capital ships are too expensive for France, but her activity in the building of those classes of vessels not restricted at Washington is shown by the fact that since that conference she has laid down or appropriated for 7 cruisers (7,900 to 10,000 tons), 1 cruiser mine layer (8,000 tons), 15 leaders (2,350 to 2,650 tons), 22 destroyers (1,430 to 1,465 tons), and 48 submarines (600 to 3,250 tons). In addition, she has projected 3 cruisers, 9 leaders, 10 destroyers, 32 submarines; all to be laid down by 1930. It is this extensive submarine force which is the chief cause of Britain's fear. The refusal of the United States and Great Britain to guarantee France's security, combined with the results of the Washington conference, have made France feel that she must look to her own security and must not, without compensation, sacrifice those classes of vessels which she is capable of building and which are most dreaded by England. At Washington, France emphatically declared that her minimum submarine requirements amounted to 90,000 tons.

(*d*) Great Britain came out of the conference feeling that she had surrendered her primacy at sea. There has been a strong feeling in Great Britain (especially since the Chinese and Russian questions have become acute) that the scrapping of the United States capital ships did not compensate for the abrogation of the long-standing Anglo-Japanese treaty. She has felt that her needs of cruisers are greater than those of any other power and has laid down accordingly. Her fear of France has made her devote particular energy to antisubmarine work. And Singapore has been her answer to the defense requirements of Australia and New Zealand and to the abrogation of the Anglo-Japanese treaty. Britain knows that, eco-

nomically at least, the Washington conference was very beneficial to her. But British naval pride has been hurt because Britain bound herself to accept equality with the United States. Since the conference Britain has laid down, or authorized and appropriated for, 2 battleships (35,000 tons), 13 cruisers (10,000 tons), 1 cruiser (7,260 tons), 2 cruisers (8,000 tons), 2 destroyers (1,210 and 1,330 tons), and 9 submarines (1,480 to 1,540 tons). In addition she has projected 1 aircraft carrier, 7 cruisers, 3 leaders, 24 destroyers, and 18 submarines; all to be laid down by 1930.

(*e*) Japan, like France, felt that she had been humiliated by the conference in that her ratio was smaller than the United States and Great Britain, which gave her the appearance of being a secondary power. She felt much relieved by the removal of the fear of United States fortifications in the Far East, but a new problem has arisen for Japan, as a direct result of the conference, namely, Singapore. For the time being Singapore is of more concern to Japan than Hawaii, although the latter is not conducive to her comfort. Japan feels that she was tricked into excepting the western longitudinal limit of fortifications, which limit just permits the creation of the base at Singapore. She also feels, with France, that the United States disarmament project as outlined at the beginning of the conference was prearranged between the United States and Great Britain and that Japan was thus placed at a disadvantage. Economically the Washington conference was a necessity for Japan, but since then she has devoted herself to the building of types not limited at Washington. Since the conference she has laid down, or authorized and appropriated for, 8 cruisers (10,000 tons), 4 cruisers (7,100 tons), 2 cruisers (5,600 tons), 1 cruiser (3,100 tons), 7 destroyers (900 tons), 27 destroyers (1,450 tons), 20 destroyers (1,700 tons), 4 submarines (1,970 tons), 16 submarines (1,400 tons), 4 submarines (1,000 tons), 10 submarines (770 to 998 tons), and 5 other submarines. At the conference Japan stated that she required a minimum of 54,000 tons of submarines and would accept a 5–5–3 ratio on this basis.

(*f*) The chief interest of Italy in the conference was to keep on a parity with France. Succeeding in this, she has not been dissatisfied with the treaty. She opposed the abolishment of submarines and has, since the conference, been concentrating on the building of light forces. The advent of Mussolini has placed Italy in a different light and has spurred on her building activities. Since the conference she has laid down, or authorized and appropriated for, 2 cruisers (10,000 tons), 16 destroyers (1,150 to 1,350 tons), and 19 submarines (775 to 1,400 tons). In addition she has projected 3 cruisers, 1 air-

craft carrier, 8 destroyers, and 3 submarines. At the conference Italy agreed to a submarine allotment of 31,500 tons, provided that France did also, which the latter would not.

In 1923, in pursuance of a decision of the Council of the League of Nations, the naval subcommission of the Permanent Advisory Commission for Military, Naval, and Air Questions invited all of the naval powers possessing capital ships to participate in a conference for the purpose of drawing up a draft convention for the extension of the principles of the treaty of Washington. The conference met at Rome, February 14, 1924, and ended its discussions on February 25, 16 nations participating. The conference was a complete failure—almost a farce. The number of nations included was so great and their interests so diversified that agreement was hardly reached upon the simplest matters. The delegates were practically all naval officers. The United States took no part in this conference, and no results were forthcoming from the gathering.

By the terms of Article VIII of the Covenant of the League the members recognize the necessity for reduction of armaments. Accordingly, by this Covenant, the League is forced to take steps in this direction. After the drafting of the Locarno treaties the Sixth Assembly of the League (in September, 1925) requested the Council to make a preparatory study of the subject of limitation of armaments. The result of this was that in May, 1926, the Preparatory Commission for the disarmament conference met at Geneva.

The commission continued its work, with several interruptions, until November, 1926. It then adjourned until March, 1927, and again adjourned on April 27, 1927. At all of these sessions the United States was represented, as were all of the large maritime nations. In general, the sessions of the preparatory commission might be said to have been failures. The good which they have accomplished has not been in the form of agreements but in the airing of points of view and attitudes toward the subject at hand. In general, the sessions of the commissions very soon divided themselves into arguments between two opposing blocs. One, headed by France and her allies, might be called the continental bloc. The other, headed by the United States and England, the maritime bloc. At Geneva, France was in a much better position than at Washington, because in the former conference she was supported by all of her nonmaritime continental allies, whose vote on naval questions had equal weight with such nations as the United States. In brief, the sessions of the commission have been a succession of bright and dreary prospects till finally the deadlock on vital questions became unbearable and the indefinite adjournment took place. The principal points over which the commission broke were whether land armament was to be considered distinct from naval armament

and whether the naval tonnage allowed a nation was to be apportioned and allotted to various classes of vessels. France and her allies took the negative in both of these questions, while the United States, Great Britain, and Japan took the affirmative. The attitudes of the various principal powers can be understood by the following:

(*a*) *United States.*—Favored limitation on basis of total tonnage for each class of vessel, total number of vessels in each class, maximum tonnage, and caliber of gun per unit of class. Opposed international supervision of armaments; comparison of fleets on a basis of age; opposed limitation on a global or budgetary basis.

(*b*) On the whole, Japan agreed with the United States in its points of view.

(*c*) Great Britain also generally agreed with the United States.

(*d*) France favored a global tonnage basis of limitation; a combining of land and sea armaments for purposes of limitation; international supervision of armaments; comparison of fleets on a basis of age; limitation on a basis of budgets. She believed that it is impossible to distinguish between classes of ships and that comparisons between ships are inadequate.

(*e*) Italy agreed with France on practically all of the latter's propositions, with the notable exception that she opposed international supervision of armaments.

The several points of view brought forth by the Commission were noted in the report to the League. The Commission is now awaiting the action of the League on this report, and it is doubtful if the commission will meet before November 1 at the earliest. The entire subject will doubtless be held in abeyance by the League, awaiting the outcome of the Three-Power Conference.

The fundamental and consistent viewpoint of the United States regarding limitation of armament has been that the subject is too broad to be considered inclusively and universally; that results can only be obtained by localizing a particular phase of limitation and reaching an agreement there and then proceeding to another phase, and so on. The Washington conference was an example of this policy of localization. The United States has thought that one of the chief causes of failure of other conferences and commissions has been that the agenda has been too ambitious, too wide in its scope.

The Washington conference succeeded in limitating certain classes of vessels. But, as mentioned previously, competition immediately arose between the nations in those classes of ships, not limited at Washington. Hence, and in accordance with the policy mentioned in the preceding paragraph, various movements have been afoot in the United States since the conference to induce the Government to call another limitation conference; notable among these was a Senate resolution. But the Government desired to wait, first, to make cer-

tain of the success of the Washington conference in practice; and, second, to give the League Preparatory Commission every opportunity to achieve success. But after the adjournment of the Commission last November it became apparent that little could be accomplished by that body, and the administration then felt free to proceed with its own limitation project, making clear, however, that this project was in no way meant to interfere with what the League might also be able to accomplish.

Accordingly, on February 10, 1927, the President addressed an identic memorandum to the Governments of Great Britain, Japan, France, and Italy, inviting them to participate in a five-power conference "for limitation in the classes of vessels, not covered by the Washington treaty." Continuing, the note said:

> The American Government feels that the general principles of the Washington treaty offer a suitable basis for further discussion among its signatories.
>
> Although hesitating at this time to put forward rigid proposals as regards the ratios of naval strength to be maintained by the different powers, the American Government, for its part, is disposed to accept, in regard to those classes of vessels not covered by the Washington treaty, an extension of a 5–5–3 ratio as regards the United States, Great Britain, and Japan, and to leave to discussion at Geneva, the ratios of France and Italy, taking into full account their special conditions and requirements in regard to the types of vessels in question.

In order to forestall the evident objection which might arise in certain quarters, Geneva was named as the place of conference. It will be noted in the above, that the United States made a mild hint (probably in the nature of a "feeler") that the 5–5–3 ratio should be extended. The replies to this memorandum are interesting.

France replied very quickly (a haste which has since been regretted by a portion of French publicists). The reply reads, in part:

> It (France) desires equally to show how much it has appreciated the friendly attention of the Federal Government in leaving its proposals flexible in an endeavor to take into account the special conditions and requirements of the continental powers. The American Government has thus shown that it is quite aware of the very clear position taken by the French Government in the question of naval disarmament.
>
> Its (France) delegates at Geneva have defended and caused to prevail in the technical commissions two general principles: On the one hand that one can not undertake to limit naval armaments without taking into consideration the solution proposed for land and air armaments; on the other hand, especially from the naval point of view, that the limitation of armaments can only result from the attribution to any one power of a global tonnage that it remains free to divide according to the sense of its necessities. The American proposal sets aside immediately these two principles.

The reply of Japan was received on February 19. This reply, plainly hinted that the ratio suggested in the invitation was, as far as Japan was concerned, unacceptable. The reply reads in part:

The Japanese Government is further gratified to learn that it is not the intention of the American Government at this time to put forward rigid proposals on the ratios of naval strength to be maintained by the several powers in the classes of vessels not covered by the Washington treaty. In order to insure the success of the proposed negotiations it seems highly important that in the matter of these conditions of the limitation of armament all parties to the negotiations should approach the subject with an open mind.

The reply of the Italian Government was sent on February 21. It is rather unequivocal and reads in part:

The Italian Government thinks that limitation of armament, in order to be efficacious for the purposes of which President Coolidge speaks, must be universal.

Italy, on account of her unfavorable geographical position, can not expose herself without grave danger to any restrictions of her naval armaments.

The British Government interrogated the Dominion governments before replying. The reply, made on February 28, like that of Japan, politely refuses the hint of the United States and reiterates the well-known British position in regard to cruisers and small craft. Britain, desiring to support the League, also makes allowance for the continuance of the activities of the Preparatory Commission. The reply reads, in part:

The views of His Majesty's Government upon the special geographical position of the British Empire, the length of interimperial communications, and the necessity for the protection of its food supplies are well known and, together with the special conditions and requirements of the other countries invited to participate in the conversation, must be taken into account.

They would, however, observe that the relationship of such a conversation to the proceedings of the Preparatory Commission at Geneva would require careful adjustment.

During the course of these negotiations the United States emphasized, informally, that the proposed conference was to be for limitation and not reduction of armaments.

After the above replies were received, the United States informally invited Great Britain and Japan to a three-power conference. After acceptance of this invitation, the United States addressed a note to Great Britain and Japan expressing pleasure at the action of these powers, but it is interesting to note that nothing further was said about the 5–5–3 ratio or any other basis of limitation.

On March 14 the United States addressed further memoranda to France and Italy, which are given below in part. In these it is interesting to note that "it does not desire to open up questions already settled by treaty," which is taken to refer to the subjects covered by the Washington treaty; and that an agreement, if finally reached, would be made subject to revision in the case of unforeseen naval activity by any nonsignatory nation.

To the French Government:

The American Government has no preconceived ideas regarding any definite ratio for limitation of French tonnage. It does not desire to open up questions

already settled by treaty, but wishes to point out that all other questions relative to limitation of naval armament are open and that in the projected conversations each power would have the privilege of taking any position it thinks best for its own protection as a basis for negotiation.

To the Italian Government:

The American Government is also of the opinion that an agreement for partial limitation of armaments could expose no power to danger from the navies of the powers not included in such an understanding, since no agreement is contemplated which would not be subject to reconsideration or revision should the security of any party to it be menaced by the naval program of a nation not included in the understanding.

On April 4, France, in a memoranda to the United States, refused to be represented at the conference by even an observer and let it be known that her views on limitation had not changed. France gave as her ostensible reason for refusal her desire not to weaken the authority of the League, which was also considering limitation. The President let it be known that France's refusal would not interrupt the plans for the conference.

On May 17 the Italian Government informed the United States that she would conditionally accept the invitation to be represented by an observer and reserved the right to send such an unofficial representative.

The failure of the Preparatory Commission (a French prodigée), combined with the Italian acceptance of the observer invitation, placed France in an embarrassing position. So she backed water in her point of view, reconsidered her reply to the United States, and is represented by an unofficial observer at the Three Power Conference.

Under these conditions, the Three Power Conference met June 20. Before closing this article, let us now briefly outline what has appeared to be the predominant feeling among the press and people of Great Britain and Japan regarding the propositions to be put forward and the results to be attained at this conference.

GREAT BRITAIN

(*a*) Welcomes the conference because of the economic relief it may afford.

(*b*) Is thoroughly convinced that her need of light cruisers is greater than that of any other power and does not support an extension of the 5–5–3 ratio to this class.

(*c*) Favors universal abolishment of submarines but can not sanction an abolishment of this class while Italy or France maintain them.

(*d*) Feels that her need of light craft is directly in proportion to the submarine programs of France and Italy.

(*e*) Because of Dominion pressure, would not consent to abandon the Singapore project.

(*f*) Would welcome the abolishment of capital ships, limiting all craft to 10,000 tons or under.

(*g*) Feels no threat from the United States but ridicules the idea that the United States requires as large a navy as does Great Britain.

(*h*) Feels that, due to events since the Washington conference, she can not weaken her position in the Far East.

(*i*) Agrees with the United States generally in regard to the methods of limitation to be pursued.

JAPAN

(*a*) Welcomes the conference for economic reasons, especially so as Japan's financial situation is none too strong.

(*b*) Is sincerely desirous of peace with the United States, if for no other reason, than because she knows she can not compete with us.

(*c*) Is fearful of the Three Power Conference, because if the conference is a success, she believes it will mean the even greater predominance of the United States; and if a failure, it will mean ruinous competition with the United States.

(*d*) When the conference was first called, Japan feared it because she was afraid of being caught in another Anglo-American "understanding." Since that time, these fears have gradually been allayed.

(*e*) Japanese political parties are in agreement regarding the stand Japan is to take at the conference and Japan on the whole has a united nationalistic aim.

(*f*) Is universally cognizant of the necessity of maintaining outside sources of oil, foodstuffs, etc., in time of war.

(*g*) Believes that her insular position, trade routes, limited shipbuilding facilities entitle her to a much better ratio than 5–3 in cruisers, destroyers, etc.

(*h*) Press and people are unanimous against any extension of the 5–5–3 ratio. It is felt that this opposition is not based upon an understanding of the relative facts but is purely a matter of "face."

(*i*) Opposes the abolition of submarines, although not unanimously.

(*j*) Is widely opposed to the scrapping of any modern vessels, holding that her fleet and building program constitute an irreducible minimum.

(*k*) Has endeavored to lay down as many ships as possible prior to the conference.

(*l*) Fears the Singapore project and would be glad to see some limitation placed on the defenses of Hawaii and Panama.

(*m*) Has sent a very strong delegation to the conference, headed by the distinguished Governor of Korea, Admiral Saito.

51490—27——10

II. VARIOUS COMPARISONS BETWEEN THE STAFFS OF THE UNITED STATES, BRITISH, AND JAPANESE SERVICES

(a) Organization of staff of flag officers—Comparison of flag officers and staffs

	U. S. Battle Fleet	Japanese First Fleet and British Mediterranean Fleet
Commander in chief	Admiral	Admiral.
Chief of staff	Captain	Rear admiral.
Assistant chief of staff	Commander	Commander. (operations) Lieutenant commander. (staff). Paymaster lieutenant commander (secretary to chief of staff.)
Fleet engineer	do	Engineer captain. Warrant engineer, to assist fleet engineer.
Fleet gunnery officer	Lieutenant commander	Commander.
Fleet intelligence officer		Lieutenant commander.
Fleet torpedo officer		Commander.
Fleet personnel officer	Lieutenant commander	
Fleet communication officer	do	Lieutenant commander (signals). Lieutenant.[1]
Fleet radio officer	Lieutenant	Lieutenant commander (W/T).
Fleet aviation officer	Lieutenant commander	Wing commander, Royal Air Force.
Flag lieutenant	do	Flag lieutenant.
Flag captain		Captain (also commands flagship).
Flag secretary	Lieutenant (junior grade)	Paymaster captain. Paymaster lieutenant. (Duty in admiral's office.)
Fleet surgeon	Commander (M. C.)	Surgeon commander.
Fleet paymaster	Commander (S. C.)	Paymaster captain.
Fleet chaplain	Captain (C. H. C.)	
Fleet construction	Commander (C. C.)	
Fleet marine officer	Lieutenant colonel (U. S. M. C.)	Major (R. M.)
Assistant communication officers.	Ensign do do do	Paymaster lieutenant. Do. Do. Do. Paymaster sublieutenant. Paymaster midshipman. Warrant writer.
Assistant fleet radio officer	Chief radio electrician	Lieutenant.[1]
Assistant to fleet paymaster	Chief pay clerk	
Assistant to fleet surgeon	Chief pharmacist	
Captain of fleet		Captain.
Secretary to captain of fleet		Paymaster lieutenant commander.
Fleet physical and recreational training officer.		Lieutenant commander.
Fleet photographic officer		Do.
Fleet instruction officer		Instructor captain.[2]
Master of fleet		Commander (N) (and navigator of flagship).
Fleet antisubmarine		Lieutenant commander.

[1] Has additional duty.
[2] Instructor captain accommodated in *Egmont*.

NOTE.—A study of the staff organizations given above shows that the staffs of these flag officers (in the Japanese and British Navies) are practically identical both as to numbers, individual duties, and the rank of the officers assigned thereto. These foreign staffs are also larger (by 50 per cent) than in the U. S. Navy.

(a) Organization of staff of flag officers—Continued

	United States Scouting Fleet	Japanese Second Fleet, British Atlantic Fleet
Commander in chief	Vice Admiral	Admiral.
Chief of staff	Captain	Commodore first class (captain I. J. N.)
Secretary to chief of staff		Paymaster lieutenant commander.
Fleet gunnery officer	Commander Lieutenant commander	Commander.
Fleet engineer	Commander	Engineer captain.
Fleet torpedo officer		Commander.
Flag secretary	Commander	Paymaster captain.
Assistant secretary		Paymaster lieutenant commander.
Flag lieutenant	Lieutenant commander	Flag lieutenant commander.[1]
Fleet signal officer		Do.
Fleet radio officer	Lieutenant commander	Lieutenant commander.
Assistant fleet radio officer		Lieutenant.
Fleet surgeon	Commander (M. C.)	Surgeon commander.
Fleet paymaster	Captain (S. C.)	Paymaster captain.
Fleet chaplain	Commander (C. H. C.)	
Fleet construction	Commander (C. C.)	
Fleet marine officer	Major (U. S. M. C.)	Major (brevet lieutenant colonel).
Assistant to fleet paymaster	Chief pay clerk	
Fleet aviation officer		Wing commander, Royal Air Force.
Captain of fleet		Captain.
Secretary to captain of fleet		Paymaster lieutenant commander.
Staff officer (operations)		Commander. Lieutenant commander.
Fleet physical and recreational training officer.		Do.
Assistant to fleet engineer		Engineer lieutenant commander.
Fleet instruction officer		Instructor commander.
Assistant communication officers		Paymaster lieutenant. Do. Do. Do. Do.
Flag captain		Captain.
Fleet navigation officer		Commander.[1]

[1] Has other duties.

NOTE.—A study of the staff organizations given above shows that the staffs of these flag officers (in the Japanese and British Navies) are practically identical both as to numbers, individual duties, and the rank of the officers assigned thereto. These foreign staffs are also larger (by 100 per cent) than in the U. S. Navy.

	United States Asiatic Fleet	Japanese First Foreign Service. Squadron, British China Station
Commander in chief	Admiral	Vice admiral.
Chief of staff	Captain	(Vide flag captain.)
Secretary to chief of staff		Paymaster lieutenant commander.
Fleet engineer	Commander	Engineer captain.
Assistant to fleet engineer		Commissioned engineer.
Fleet operations officer	Commander	Lieutenant commander.
Fleet gunnery officer	do	Commander.
Fleet torpedo officer		Lieutenant commander.[1]
Flag lieutenant	Lieutenant commander	Flag lieutenant.[2]
Flag secretary	do	Paymaster commander.
Assistant secretary		Paymaster lieutenant.
do		Do.
Fleet radio and communication officer.	Lieutenant commander	Flag lieutenant.[2]
Staff officer (intelligence)		Commander. Lieutenant commander.
Assistant communication officers	Lieutenant (junior grade) Ensign do	
Fleet surgeon	Commander (M. C.)	Surgeon commander.
Fleet paymaster	Commander (S. C.)	Paymaster commander.
Fleet marine officer	Major (U. S. M. C.)	Major (brevet lieutenant colonel).
Assistant to fleet paymaster	Chief pay clerk	
Flag captain		Captain (and as chief of staff).
Fleet navigation officer		Commander.[1]
Fleet physical and recreational training officer.		Lieutenant commander.[1]

[1] These staff duties are in addition to regular duty on board H. M. S. *Hawkins*.
[2] Flag lieutenant is also fleet radio and communication officer.

NOTE.—A study of the staff organizations given above shows that the staffs of these flag officers (in the Japanese and British Navies) are practically identical, both as to numbers, individual duties, and the rank of the officers assigned thereto. These foreign staffs are also larger (by 15 per cent) than in the U. S. Navy.

(*a*) *Organization of staff of flag officers*—Continued

	United States Special Service Squadron	British North America and West Indies Station
Commander in chief	Rear admiral	Vice admiral.
Flag secretary	Lieutenant commander	Paymaster commander.
Assistant secretary		Paymaster lieutenant.
Do		Do.
Flag lieutenant	Lieutenant	Flag lieutenant (and as fleet communication officer).
Fleet surgeon [1]	Commander (M. C.)	Surgeon commander.
Fleet marine officer [1]	Major (U. S. M. C.)	Major (R. M.).
Chief of staff		(Vide flag captain).
Secretary to chief of staff		Paymaster lieutenant.
Flag captain		Captain (and as chief of staff)
Fleet navigator and staff officer (Operations).[1]		Commander.
Fleet gunnery officer [1]		Lieutenant commander.
Fleet torpedo officer [1]		Do.
Fleet physical and recreational training officer.[1]		Lieutenant.
Fleet engineer [1]		Engineer commander.
Assistant to fleet engineer [1]		Commissioned engineer.
Fleet paymaster [1]		Paymaster commander.

[1] These staff duties are in addition to regular duty on board H. M. S. *Calcutta*.

NOTE.—Comparison made only between United States and British similar forces. There is no corresponding Japanese naval force.

(b) GENERAL SYSTEM OF INSPECTIONS, CORRESPONDING TO OUR QUARTERLY AND ANNUAL INSPECTIONS

Inspections (*Japanese Navy*).—In the Japanese Navy, the commander in chief (who also commands one squadron or division) inspects every ship under his command annually.

The squadron and division commanders inspect their own commands annually.

There are apparently no quarterly inspections, as in our service.

These inspections are made by the commander in chief, squadron and division commanders with their own staffs (not with officers from another vessel of the same class, as in our service). The inspections extend over two days, one at anchor and the other underway.

Inspections (*British Navy*).—Commanders in chief and division commanders inspect annually all the vessels under their command. They also inspect all vessels upon assuming and relinquishing command. (Sometimes the annual inspection is combined with one of the last mentioned.) These inspections are usually of two days' duration and are held at anchor. The flag officer is assisted by his own staff (fleet and personal). He inspects the whole personnel at quarters (uniform, bearing, physical condition, cleanliness, etc.) and the upper decks, bridges, conning tower, signal stations, and galleys. The ship is inspected for cleanliness and stow (but not for condition of matériel). The condition of the bags and hammocks is ascertained by having two divisions (picked at random) inspected, one for clothing and the other for bedding. Drills are held.

The matériel condition of a ship is ascertained by a periodic navy-yard inspection by a specially appointed board (at least once every four years). The double bottoms are kept in condition by a selected and permanently designated detail of engineer ratings, the senior engineer officer being responsible for their condition at all times. They are red-leaded but not painted. The manhole plates that close the double-bottom openings are secured with screw bolts—not with dogs, as in the United States naval service.

Inspections (commanding officers).—Weekly—All parts of the ship. In major ships, most commanding officers inspect a portion of the ship every day, finishing up with the personnel and the upper decks on Sunday. Sunday is the principal inspection day, just as it used to be in the American Navy. The King's Regulations require the commanding officer to visit the engine and firerooms every day.

(c) PROTECTION OFFERED TO FLAG OFFICERS' BATTLE STATIONS DURING ACTION

Japanese Navy.—Although the *Nagato* and *Mutsu* (the two 16-inch-gun battleships) are each provided with a very large well-designed oval conning tower, designed to afford ample space and good protection to the flag officer and his staff and the commanding officer and his navigator, the tradition of the Japanese Navy and the desire of the flag officer to provide himself with the best possible all-around view keeps him out on the bridge.

There is a bridge provided for the flag officer in the foremast, with a light special-treatment steel casing around it to furnish protection against splinters and water due to projectiles.

British Navy.—The prescribed battle station for flag officers is in the armored conning tower, although in actual practice they practically never remain there on account of the restricted view to be obtained from that station. According to the best professional opinion on the subject, the commander in chief should be behind thick armor and use the eyes of his staff and special lookouts, but the commander in chief feels that he must be where he can get a good all-around view of all the forces engaged in order that he may make the prompt and correct decisions necessary to success. They consider that the small amount of protection afforded by the most modern conning tower is no return for the loss of an all-around view of the forces engaged. They do not take battle station in fire-control position aloft (at the masthead).

(d) PROTECTION TO FLAG SIGNAL AND RADIO STATIONS DURING ACTION

Japanese Navy.—The signal bridge in the *Nagato* and *Mutsu* is protected by an all-around special-treatment steel screen against small missiles, fragments of shell, and water.

The main radio station is below, behind heavy armor. The secondary radio station has medium to light armor.

British Navy.—Same as Japanese.

(e) POSITION OF FLAGSHIP IN BATTLE FORMATION

Japanese Navy.—This navy having always been profoundly affected by British naval practice (it had close British naval associations for 20 years during the Anglo-Japanese alliance), the prevalent British standard practice could quite confidently be expected to obtain.

British Navy.—In a British Fleet the commander in chief may be (in general) expected to be in an independent flagship, with or next to the strongest squadron. That strongest squadron's position relative to the thick of the fight must depend somewhat on circumstances, but it will invariably be as close as possible to that part of the engagement.

III. THE MARITIME PROBLEM OF THE BALTIC

Below is a summary of an article by Commodore Capt. A. Sourander, Finnish Navy, entitled "Political Reflections Regarding the Baltic From the Viewpoint of the Marine." It was published in the first issue (1927) of the new periodical called Finland's Flagga (The Finnish Flag). This periodical, designated on the title page as the official organ of the Finnish Fleet Society, is published in the interest of the Finnish Fleet and mercantile marine. Finland is at present constructing one 400-ton submarine and various small coastal craft.—ED.

The writer begins with an examination of the maritime power of the states adjacent to the Baltic Sea.

The rôle of Denmark is in guarding the entrances and the exits between the Baltic and the North Sea; the Great War proved that Denmark is able to keep them closed.

Speaking of Sweden, he says that in spite of the successful work done by the navy during the Great War in maintaining neutrality and in protecting navigation in its waters, Sweden has lately neglected the navy, which now is rather weak.

Poland received two ports together with the "corridor." It has now begun an extensive naval program—construction of a modern naval base at Gdynia, 126 airplanes, naval treaties with France and Denmark, securing the assistance of France in case of a war with Russia, cutting East Prussia off in case of a war with Germany, and preventing the union of the German and Russian Fleets in case of a war with both neighbors.

Estonia and Latvia will continue their naval cooperation in order to guard the entrance into the Gulf of Riga.

Germany is emphasizing quality in ships, officers, and sailors since the Versailles treaty imposed a limitation upon her fleet and army.

The war-time Russian Navy collapsed after the Bolshevik revolution. But during the last few years the Russian Baltic Fleet has regained much of its prestige. Due to certain agreements with Japan and China, Russia has found it advantageous to concentrate much of its naval force in the Baltic. Being unhampered by the Washington treaty and the League of Nations, the Soviet Government has not only repaired many of its largest warships but also completed the construction of certain boats begun before the revolution. At the Rome conference Russia demanded the right to maintain a navy of 354,000 tons in the Baltic Sea (or 280,000 tons if the sea is closed to the other great powers) and 124,000 tons in the Black Sea.

If compared with the tonnage of Sweden (79,000), Germany (113,500), Poland (3,100), and Finland (3,000), the present actual tonnage of the Russian Baltic fleet (148,000) is evidently much greater than is necessary for the defense of Kronstad and Luga. Furthermore, a demand is being made for the return of the Wrangel fleet.

The first most probable operation of the Russian fleet in case of a war would be the occupation of the Aland Archipelago and the Riga Gulf, which are the strategic points to the three gulfs of the Baltic Sea. Both in Sweden and in Finland it is generally held that the neutralization of Aland with the destruction of the local forts was a great mistake. According to the Aland convention, the Council of the League of Nations will concern itself with the defense of the islands only after a hostile attack has been made. This is too late to be of any use to us. Communication via Aland is practically a question of life and death for Finland; for Sweden it is also of much importance.

The first operations of the Russian Navy in the Baltic would doubtless be as follows: (1) The main naval force will be stationed in the Aland Archipelago; this plan gives Russia control of the Gulf of Bothnia and the Gulf of Finland, preventing the landing of the western enemy on the coast of the Gulf of Finland and cutting off Finland from the west. (2) The lighter warships will be stationed in the Gulf of Riga, remaining in communication with the eastern bases through the Moon Sound and attacking the western parts of the Baltic Sea through the Irben Sound, particularly with submarines, which can extend their operations to the Danish waters. The fortress of Helsingfors and Tallinn will not be able to prevent such operations, since they have the assistance of only weak naval forces and may be successfully besieged.

Which are the navies that may be expected to come to the aid of Finland? The Washington conference, where the "one-power

standard" (5 5 3) was adopted, left England with no surplus navy that it might send from the main theater of war if England itself was engaged in a war.

All the other powers have even more reason to be careful and not interfere. In case of a war in the Far East, Russia would certainly be supreme in the Baltic Sea, and Russia has still the same reason for dominating the Baltic Sea as in the time of Peter the Great. Russia particularly needs to make the Finnish Gulf safe for itself. Moreover, in case of a menace to Leningrad (even if Finland remains neutral), the Russian forces need certain bases on Finland's coast in addition to the archipelago. Many instances from previous wars with Sweden can be cited showing the correctness of this view. It will prove quite impossible for Finland and the Baltic States to preserve their neutrality. Either the Russians or their enemies will enter our territorial waters and ports or accuse us of allowing their enemy to have submarine or military bases in our archipelago.

The principal thought of the article is that a Russian war in the Baltic against any State will endanger the peace of Finland, hence the generation of the present day would be guilty of gross negligence if it fails to build up a fleet strong enough for effective operations in the archipelago. "To insure the independence of Finland we must have an efficient defense of our own. The allies that might come to our aid would not be familiar with the archipelago operations. Finland needs a considerable fleet for its archipelago and well-experienced officers and sailors, who are well trained and who have the advantage of having operated in our waters. Our fleet should be protected against air attacks and assisted by our air force. Finland's membership in the League of Nations does not mean that we should neglect to develop our own defense. On the contrary, we are morally bound to do all we can to defend our country against invasion.

"The program of a Finnish fleet may be said to be, first, military for the purpose of defending Finland's sovereignty, national safety, and neutrality, according to the covenant of the League of Nations and according to the conventions signed by Finland; to safeguard and control all its archipelago and channels; to protect the Finnish Army, if necessary; secondly political, to safeguard the navigation between our coast and foreign countries; to protect our merchant marine and fisheries; to make Finland known abroad and to raise Finland's prestige."

CONFIDENTIAL

OFFICE OF NAVAL INTELLIGENCE
NAVY DEPARTMENT
Washington, D. C.

MONTHLY INFORMATION BULLETIN

VOLUME X—NUMBER 1

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DISTRIBUTION

In general: Bureaus of the Navy Department; all force commanders; all commanding officers of capital ships, the larger patrols, destroyers, and submarines

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FOR CONVENIENCE IN ROUTING

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GUNNERY OFFICER			
NAVIGATION OFFICER			
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FIRST DIVISION OFFICER			
SECOND DIVISION OFFICER			
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MARINE OFFICER			
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"E" DIVISION OFFICER			
"M" DIVISION OFFICER			
"N" DIVISION OFFICER			
"R" DIVISION OFFICER			
RADIO OFFICER			

The material for the BULLETIN is largely derived from service sources and its interest and value are correspondingly dependent upon the number and character of the reports received by the Office of Naval Intelligence from our own officers. In this connection the observations of officers afloat are of great value, particularly if the reports rendered are drawn up in accordance with existing intelligence instructions.

While political and economic information is undoubtedly of much use, the collection of military information should come first in the intelligence work of cruising ships.

NOTICE

The contents of this number of the BULLETIN are based upon information received in the Office of Naval Intelligence between May 25 and June 25, inclusive.

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H. M. S. ADVENTURE

CONFIDENTIAL

O. N. I. MONTHLY INFORMATION BULLETIN

VOL. X JULY, 1927 No. 1

ARGENTINA

A. NAVAL

1. New naval units.

Since the arrival in Buenos Aires of Commander Pastor, who brought the reports of the Argentine Naval Mission in Europe on the construction of new ships for the Navy, the Ministry of Marine has completed preparations relating to the purchase of the new naval units.

The executive power has resolved to authorize the Ministry of Marine to contract the following: Light cruisers of 6,400 tons, to be built in Italy along the latest lines; three destroyer leaders of 1,700 tons displacement, to be built in Great Britain; two 800-ton "sloops" for hydrographic work and two tugs to assist the *Ona* and the *Querandi;* three submarines, to be constructed in France.

Also the department has been authorized to purchase aviation material and equipment for use in arsenals and repair ships in the fleet.

According to the information published the total amount of the appropriation—75,000,000 gold pesos—will be divided into quotas of 35,000,000 gold pesos for the first three years, 20,000,000 for the next three years, and the remaining 20,000,000 for the last four years allowed for the completion of the general program.

Besides the units mentioned there will be constructed later a light cruiser, three destroyers, three submarines, and other materials and supplies.

Further reports mention the signature of a contract with Spain for a loan of 100,000,000 pesetas. A portion of these funds will be used for the purchase of two Spanish destroyers and the balance for other naval construction.

NOTE.—Further information on this construction program has been given in the last several Bulletins. Authorized last winter, the program provides for three cruisers (6,400 tons), three leaders (1,700 tons), four destroyers (1,200 tons), six submarines (920 tons), and miscellaneous craft. Bids from United States firms were neither received nor desired.—Ed.

BULGARIA

A. MISCELLANEOUS

1. Geographic information affecting the strategy of the country.

(Source: M. I. D.)

IMPORTANT NATURAL FEATURES

The Danube.—This river, forming the greater portion of the boundary line between Bulgaria and Rumania, is a great obstacle to invasion. The width of the river varies from 760 to 2,400 yards and is narrowest at Calafat (Rumania), just north of Vidin. It is frozen over on an average of 39 days in 72 winters out of 100. The banks on the Bulgarian side are for the most part cliffs of 500 to 600 feet in height, while the Rumania banks are low and marshy with many lagoons. Vessels of 12 feet draft may use the river in ordinary high water.

Deli Orman (Wildwood).—This is a barren, hilly region of limestone formation from Rustchuk on the Danube to Varna on the Black Sea. These low-lying hills, rarely exceeding 1,000 feet in height, form the first natural obstacle to an advance from the Dobrudja.

The Balkans.—This mountain range begins in northwestern Bulgaria on the Serbian boundary in the valley of the Timok and extends southeast to the Isker Gorge, thence east to the Black Sea, traversing the entire length of Bulgaria, a distance of 373 miles. The average width of the range is 18½ miles. The greatest height is 7,785 feet. There are scarcely any crags or peaks and no glaciers. The summits are usually rounded and serve as pastures in summer. From the beginning of November there are heavy snows.

Important passes are the Isker Gorge through which the Sofia-Plevna railway runs; the Araba Konak Pass, which was the main route from Sofia to the Balkan foreland before the railway was built and is 3,123 feet high, but is dominated by heights on each side (these heights were fortified by the Turks in the Russo-Turkish War); the Shipka Pass, height 4,363 feet; the Elena Pass, 2,241 feet; and the Kotel Pass, 3,598 feet.

The Balkan Range forms a formidable military obstacle to any invasion from the north which succeeds in penetrating that far.

Rhodope and Rila Mountains.—Between the Struma and Maritza Rivers extends a mass of mountains. The first mass, the Rila Mountains, is very high, averaging 6,135 feet. The Rhodope Mountains continue to the east as far as the Maritza, gradually becoming lower. These mountains form a very good barrier against invasion from the west and from the south.

Istranja Hills.—Between the Tunja River and the Black Sea—these wooded hills form a difficult country for an army to pass through.

The Black Sea.—The Black Sea coast, although for the most part bordered by the Istranja Hills and the Balkans, has ports at Varna and Burgas. There are possible landing places at Messevriya and Ahillo, both on the Gulf of Burgas, with considerable hinterland to allow the maneuvering of troops.

Routes of invasion.—The best routes of invasion are as follows: From Rumania, from the Dobrudja; from Yugoslavia, through Dragoman Pass to Sofia; from Greece, the Struma Valley; from Turkey, the Maritza Valley.

CONCLUSIONS

The treaty of Neuilly reduced the armed forces of Bulgaria to comparative impotency. However, it is not believed that she has lived up to the terms of this treaty, and at the present time it is probable that a force of eight divisions can be put into the field in a short time. This force would be lacking in certain technical troops and air force. With an ally in a position to supply munitions, Bulgaria can increase this force to 16 divisions in a few months.

Bulgaria is not self-supporting in munitions. She has obtained permission from the Councilor of Ambassadors to purchase abroad the munitions she is using. Bulgaria's ability to wage war depends upon her finding some ally who will furnish the necessary munitions.

NOTE.—Bulgaria's war-time allies are not in a position to furnish her extensive armament. But, more than this, Bulgaria is deterred from warlike ventures largely by financial and internal political considerations. She is more or less isolated in the Balkans at present. Soviet activities have, since the war, been particularly actitve and fruitful in this country.—Ed.

CHILE

A. NAVAL

1. New fleet organization.

For some time the Ministry of Marine, in conjunction with the Naval Superioridad, has been occupied in drawing up a new organization for the active squadron. The following decree has been promulgated:

Decreto.—1. The present active squadron is declared dissolved as of the present date.

2. The naval forces will be organized from to-day in the following form:

CRUISER DIVISION

Battleship: *Almirante Latorre* (B. B., 28,000 tons).
Cruisers:
O'Higgins (O. C. A., 8,500 tons).
Blanco (O. C. L., 4,400 tons).
Zentono (O. C. L., 3,400 tons).

DESTROYER DIVISION

Cruiser: *Chacabuco* (O. C. A., 4,500 tons).
Destroyers:
Lynch (D. D., 1,430 tons).
Riveros (D. D., 1,740 tons).
Williams (D. D., 1,740 tons).
Uribe (D. D., 1,740 tons).
Condell (D. D., 1,430 tons).

CHINA

A. POLITICAL

1. Soviet activities in China.

NOTE.—On April 6 last the soviet compound in Peking was raided by a detachment of police and troops of the antisoviet general, Chang Tso-Lin. The Peking Government is translating the documents found in this raid and there are given below a few representative ones. The evidence which the documents present of soviet government interference in China and of communistic and antiforeign agitation by that government in China is so complete that it will be recalled that the documents were mentioned by Sir Austen Chamberlain as one of the reasons for the recent break of Great Britain with the soviet. There is given first an extract from a dispatch of the Peking correspondent of the London Times.—Ed.

[(A) London Times]

The process of examining the mass of papers discovered in the soviet embassy compound in Peking continues slowly but surely, and every now and then something of specific interest is found. The indignant assertions from Moscow that the documents given to the press are fabrications, either by white Russians or imperialist agents, ingeniously placed among the quantities of harmless records to be found in any official office, are worthy of no attention. The finds are as genuine as those in the tomb of Tutankhamen, the circumstances surrounding their discovery, and their great and varied quantity precluding the possibility of forgery or manufacture.

As already stated, many of the documents are carbon copies filed for reference. But among them are many originals with known

signatures, and it is to these that attention has been principally drawn, because they prove what was formerly mainly conjecture, so far as the public was concerned—that the soviet government was supplying money, arms, and munitions to the nationalist armies, as well as paying numbers of Russian instructors and advisers to promote revolutionary disorder in China.

When the task of classification and translation is finished it will probably be possible to reconstruct a nearly complete account of official soviet dealings with the Kuomintang and other Chinese organizations. For the present various papers relating to Bolshevist activities in other parts of the world are likely to remain unpublished.

[(*B*) The Peking Government has issued a "White Book," in which are given translations of the various documents. The following is the "Foreword" of that book.]

FOREWORD

For the past few years the soviet embassy and its adjoining premises had been notorious as the headquarters of subversive soviet agitation against the Chinese Government. Toward the close of March alarming reports were prevailing in Peking about the growing activities of the communists.

For the sake of maintaining law and order in the metropolis, the local police and troops, with due authorization of the competent authorities in the Legation Quarter, effected on April 6 a search of the premises of the Dalbank and the offices of the Chinese Eastern Railway, adjoining the soviet embassy on the west.

During the search fire broke out in the office of the soviet military attaché, located in the compound of the former Russian Imperial Legation Guard, lying westward of the private properties of the Dalbank and Chinese Eastern Railway. The fire brigade which was on the scene entered the office of the soviet attaché, together with the police, to extinguish the fire. It was found then that in that office an attempt was being made to burn up documents, over which kerosene had been poured. The fire brigade succeeded in extinguishing the fire, and most of the documents, although partly burned and damaged by water and kerosene, were saved.

During the systematic and thorough search of the premises in question the following artices were found:

(*a*) A mass of documents, which throw an interesting light on the functions of the soviet embassy and particularly on the nature of the work of the military attaché.

(*b*) A vast amount of communistic propaganda material in the form of pamphlets; propaganda posters; passbooks for members of the Communistic Party; red silk identification badges with the soviet sickle and star stamped on them; thousands of small paper flags with

communistic inscriptions, as used in communistic parades and demonstrations.

(*c*) An assortment of rifles and pistols of various makes; one Thompson automatic submachine gun; one Bergman automatic rifle; a great quantity of small-arms ammunition.

(*d*) A list of over 4,000 members of the Communist Party in the Peking area; an elaborate diagram showing the numbers of active members of the Communist Party in various countries.

A number of communists, Chinese and Russian, were arrested during the search, the most prominent of them being Li Ta-chao who had represented China in the Third Internationale.

The raid established the fact that the compound of the former Imperial Russian Legation Guard contained the headquarters of the communists in which most elaborate and detailed plans and preparations had been made for the overthrow of the government in Peking and for the establishment of a communistic régime.

The captured documents proved conclusively:

(1) That the soviet embassy had a most extensive political and military secret service organization in China, which conducted a thorough espionage everywhere, even in the foreign legations in Peking.

(2) That the so-called soviet advisers and military instructors in the south are members of the various councils of the Kuomintang and the communists; that they participate actively in the affairs of the aforesaid parties and that they were paid by the soviet government through the military attaché in Peking.

(3) That the soviet government with its embassy in Peking acting as an intermediate agency was furnishing arms, munitions, and other war supplies to the enemies of the government to which its embassy was accredited.

THE METROPOLITAN POLICE HEADQUARTERS, *Peking, China, April 1927.*

[(C) The following was found written in English, and from its construction and the wording it was apparently written by an American. It contained numerous corrections, and with it appeared a Russian translation, which was a smooth copy and had no changes or alterations.]

DISTRIBUTION OF CHINESE NEWS ABROAD

Distribution of Chinese news abroad can be accomplished in several ways, which depend upon political and financial considerations.

Distribution direct to European and American newspapers might be possible, but could be exceedingly costly and difficult. Speaking for the American newspapers with which I am familiar, I should say

that it would be impossible for a Chinese news agency to enter the United States of America and attempt to sell a service directly to the press. The newspapers would be suspicious of such an enterprise. They would consider it propaganda, and accordingly, if they published the material offered, they would expect to receive it free of charge. Editorial which is received free of charge, however, is known to be propaganda, and is not given serious consideration.

We are considering the problem of distribution to the bourgeois press, in which bourgeois methods and bourgeois tastes would be considered. The question of distribution to the labor press does not involve any problem except expense.

I believe it may be found practicable as a finish method to attempt distribution through one of the bourgeois agencies. For this purpose the United Press offers the best opportunity.

It would seem inadvisable at first—unless strong political considerations made it necessary—to sign this news agency into the sphere of the monopoly of allied agencies.

It may be anticipated with complete confidence that just as soon as there exists in China a real news agency collecting and distributing accurate information about Chinese affairs it will have an opportunity to form connection either with the allied agencies or with the United Press.

The foreign agencies will quickly avail themselves of any opportunity to secure a larger volume of Chinese news. The general editorial policy of the United Press is more suitable for this purpose than that of any other bourgeois agency.

If the Asiatic News Agency can be built into a real news agency, there would be no difficulty in securing relations with the United Press. These might take the form of a reciprocal exchange of news without payment on either side, or it might involve a direct purchase of the Asiatic News Agency service for publication in America and Europe by the United Press. No such large financial return could be expected from such arrangement.

This leads us to the question of the future status of "Chung Mei." Assuming that the Asiatic News Agency becomes sufficiently important to attach the consideration of the United Press, the United Press would either have to abandon the Chung Mei as its distributing agency in China or else form merely a one-sided arrangement with the Asiatic News Agency. The relative desirability of these two arrangements would depend upon the extent to which the Asiatic News Agency might need the United Press foreign service for distribution in China. If the Asiatic News Agency had sufficient foreign sources, it could disregard the United Press from this point of view. On the other hand, it would then have to meet the continued

competition of the United Press in China. It is probable, therefore, that it would be desirable for the Asiatic News Agency to become the distributing agency for the United Press in place of Chung Mei.

As a step in this direction, although not absolutely necessary, it would be desirable to watch for a convenient opportunity to absorb the Chung Mei into the Asiatic News Agency. This could be probably done at any time for a sufficient price. The cost would depend upon circumstances of any given moment. Like all other Chinese agencies, the Chung Mei will be subject to periodic financial crises. During one of these it could probably be purchased quite cheaply.

The procedure would be simply to purchase the Chung Mei outright, taking over all contracts with Chinese newspapers or foreign agencies, absorbing all the facilities and arrangements of the Chung Mei into the Asiatic News Agency and abolishing Chung Mei.

This would accomplish the highly desirable results of removing the only important competition from the field, reducing the number of Chinese agencies, and leaving the United Press no alternative but to conclude an arrangement with the Asiatic News Agency. This operation is not necessary in order to achieve the last purpose, but could facilitate it. At present the United Press does not buy the Chung Mei services for distribution abroad, because the latter has no value for that purpose. As soon as any Chinese agency exists which has such a value the United Press will approach it. Moreover, in order to secure the exclusive use in America and Europe of a really efficient Chinese service the United Press would quickly abandon its present relation with the Chung Mei and transfer its distribution to the other agency.

This situation, as soon as it can be created, becomes a threat to the Chung Mei, and should facilitate the absorption of the later on considerate terms.

Relations of Tass with Chinese agency.—The relations of Tass (soviet press bureau) with the new Chinese agency would depend upon various considerations which require careful considerations in the lights of the allied contracts. If it is desired to bring the Chinese agency into the sphere of the allied agencies, and this is necessary if it is to have a contract with Tass, then the United Press will be eliminated as a distributer of this Chinese service abroad. This would surely strengthen the control of the allied monopoly over Chinese news, and would greatly weaken the only bourgeois contributor of that monopoly. It would seem that this step should be avoided unless very powerful advantages were to be secured thereby.

Distribution of news from the U. S. S. R. (Soviet Russia) in China.—I have not discussed the question of the distribution of news from the U. S. S. R. (Soviet Russia) and of news regarding international communist activities in China. This does not present any serious problem, provided there once exists a Chinese news agency capable of this distribution. It can be effected through Tass, if contract had consideration with Tass to have relations with the Asiatic News Agency, or if it can be accomplished through other means. It is only necessary to observe the necessary caution to avoid giving the news agency a Russian color, and to avoid all direct propaganda.

[(*D*) Instructions to agents for hiring spies in legations.]

INSTRUCTIONS

When enlisting the Chinese servants and employees in the legations of Japan, England, and America you must pay the utmost attention to the following subjects:

(*a*) The man you enlist for our work as a spy must be, first of all, of some use to us; that is, he must be in touch with the people who carry the most important and secret work in the legation (the head of the legation, the military attaché, the secretaries, etc.), or he must be in the employ as a translator, typewriter, or a boy in the offices of the legation.

(*b*) You must be certain that the man you enlist is not a traitor and that his reports must be relied upon.

(*c*) He must not know that he works for the Russian legation. You must make him believe that he works for a certain political party of China.

(*d*) The man you enlist must inform us of the prominent Chinese and foreign gentlemen who frequently visit the legations, the purposes of their visit, the conversations they held with the responsible members of the legation, etc.

He also must find out the people who are in the charge of the secret military detective work in the legation and the Chinese and foreign spies who are in the employ of the legation.

He must find out where the secret documents and confidential correspondence are kept and find means and ways to steal or copy some of them, remembering that for this work we shall pay him a special premium besides his regular salary.

[(*E*) Evidence appears in the following that the soviet government has been inciting the communists to antiforeign violence in territories under Kuomintang control as well as in North China. Some parts of this document were burnt, but on the whole it is sufficiently readable. It embodies a series of resolutions passed by the Third Internationale and apparently sent by the Moscow government to the soviet military attaché in Peking as instructions.]

INSTRUCTIONS DRAFTED FROM A RESOLUTION OF EXTENDED PLENARY SESSION OF COMMUNIST INTERNATIONAL GIVING DIRECTIONS TO THE MILITARY ATTACHÉ REGARDING POLICY TO BE FOLLOWED IN CHINA

To the Military Attaché in China (very confidential):

Inclosing a resolution on the Chinese question, carried * * *; the extended plenary session of the executive committee of the Communist International, we send you an instruction drafted according to this resolution, which you will carry out:

(1) Every attention must be paid at present to lend to the revolutionary movement in China an exclusively national character. To this end it is necessary to carry on agitation in favor of the Kuomintang as of the party of the national independence of China. Use extensively the events at Hankow and the position taken up in them by England, as a proof, first, of the success of the Kuomintang in the national work, and, secondly, of the indubitable weakness of the European powers in the struggle against the Chinese revolution.

(2) It is necessary to organize anti-European disturbances in the territory occupied by the troops of Chang Tso-lin.

(3) It is necessary to discredit the activity of Chang Tso-lin, stigmatizing him as a mercenary of the international capitalistic and imperialistic * * * (currents?), who hinders the Kuomintang in its work of liberating China from * * * (foreign?) control.

(4) It is necessary to organize agitation against Europe—an intrusion * * * (the rest has been burned).

(5) It is necessary to take all measures to stir up the mass of the population against * * * (the foreigners?). To this end it is necessary to have the foreign powers to resort * * * (to repressive measures?) in the struggle with the mob. In order to provoke the intervention of foreign * * * (troops?) do not shrink before any measures, even such as looting and mass * * * (massacre). In case of collisions with European troops use largely these cases for agitation.

(6) Be careful not to carry out at present the communistic program. This might strengthen Chang Tso-lin's position and augment the split in the Kuomintang. We have categorically ordered Borodin to abstain for the present from too strong pressure on the capitalistic elements, having in mind the aim to keep in the Kuomintang all classes of the population, including the buorgeoisie, until the fall of Chang Tso-lin.

(7) While carrying out the present anti-European movement it is most important to keep up the present antagonism among powers. It is especially important to isolate Japan as the country which can within the shortest time move into China a large number of troops.

To this end it is necessary to pay strict attention that Japanese residents should not suffer during any riots. However, as regards agitation against the foreigners, the exclusion of Japan might produce an unfavorable impression. It is therefore necessary to carry on the agitation against foreigners in the form of an anti-British movement.

* * * immediately send to all chiefs of sections and follow * * * (this instruction?) * * * (the rest has been burned).

[(*F*) Resolution relating to the Bolshevization of China passed at the seventh plenary session of the executive committee of the International Communist Party, Moscow, in the first part of 1927.]

Resolution relating to the Chinese question carried at the seventh extended plenary session of the executive committee of the International Communist Party, Moscow (confidential).

IMPERIALISM AND THE CHINESE REVOLUTION

The Chinese revolution is one of the most important and powerful factors which disturbs the stabilization of capitalism. During the last two years imperialism has suffered in China considerable defeats, the results of which will produce a considerable influence on the exacerbation of the crisis of the world capitalism. In consequence of the victorious advance of the national army toward North China, the domination of the imperialists was practically undermined in half of the country.

Further victories of the revolutionary armies of Canton, supported by the mass of the Chinese people, will result in the victory over the imperialists, in the independence of China, and its revolutionary unification, which will increase by many times the force of resistance to the influence of imperialism.

The fact that Sun Chuan-fang was unable to check the advance of the Canton army has persuaded the imperialist powers that the traditional method of using the militarists for the defeating of the nationalist revolutionary movement is no more effective. At the same time mutual rivalry does not permit the imperialist powers to unite for an open military intervention. Imperialism is looking for new methods which would correspond to the new situation. The new policy tends toward the recognition of the Canton government. The initiative in this direction is taken by the American imperialism. Even England and Japan consider the recognition of the Canton government as an admissible political measure. However, these are only diplomatic stratagems behind which hostile designs of the imperialists against the revolution are concealed.

The fundamental power of imperialism in China consists in the actual monopoly of the salt tax, the mortgage of the customs revenues,

railways, waterways, mines, heavy industry—all this belongs chiefly to foreign capital. Should capitalism keep this solid base, it will find in China a serious support in the matter of stabilization of capitalism. Owing to its huge population, China is a market with boundless possibilities. It may become a most profitable field for investing capital, provided the necessary political guarantees are secured. The enormous resources of raw materials are hardly touched in China. Therefore imperialism will make desperate efforts to crush the Chinese revolution which threatens to overthrow it. If it does not succeed in crushing the latter by means of its traditional method—the provocation of civil war—or possibly by means of armed intervention, imperialism will try to frustrate the national movement of liberation which develops alongside the revolution.

In spite of the antagonism that exists among the imperialistic powers the possibility of an armed intervention still remains. Foreign intervention in China takes a peculiar form. In the present circumstances imperialism prefers to effect the intervention by organizing civil war and financing the counter-revolutionary forces which are fighting the revolution. Just now it is being attempted to unite the troops of Chang Tso-lin with those of Sun Chuan-fang in order to check the advance of the national army. It is quite evident that this united antirevolutionary front will be created under the guidance and with the help of imperialism. The victory of revolution in China would deal to the world capitalism such a heavy blow that the imperialistic powers will strive by all means to crush it.

From the international point of view the Chinese revolution, be it but for its antimilitaristic character, is an essential part of the international revolution. This fact is connected in China with the following most important circumstances which favor the further development and deepening of the Chinese revolution:

(*a*) The competition of the imperialistic powers in China which (favor) weakens the position of the world imperialism.

(*b*) The crisis of the world capitalism.

(*c*) The growth of the proletarian movement in western Europe. An armed intervention in China will doubtless meet with a resistance on the part of the labor class in the imperialistic countries.

(*d*) The development of the national revolutionary movement in the colonies which will doubtless still more increase under the influence of the further development of the Chinese revolution.

(*e*) The fact that proletarian dictature exists in the U. S. S. R. in connection with close geographical proximity of the latter to China and the geographical remoteness of China from the basic centers of the economic and military-political might of the imperialistic powers.

Parallel with the rapid development of the national revolutionary movement the social forces participating in it are involved into a no less rapid process of regrouping.

The national revolution in China develops in so peculiar conditions that it differs substantially from the classical bourgeois revolutions of the western European States of the past century, as well as of the revolution of 1905 in Russia. The chief of these peculiarities is the semicolonial position of China which is dependent on foreign imperialism. Another difference between the Chinese revolution and the bourgeois democratic revolutions of the past consists in that the Chinese revolution is taking place in the period of the world revolution and forms an integral part of the world's movement tending to destroy the capitalistic régime. This factor will define the history of the Chinese revolution and the grouping of the social forces that participate in it.

The class forces of the Chinese revolution unfold on the background of the extreme backwardness of the Chinese economy, which results from the feebly developed industrial capitalism, the primitiveness of the technique of the rural economy, the incredibly low standard of living of the mass of the Chinese population, and the presence of numerous anachronisms resulting from a half-feudal system—all of which are being overthrown by the pressure of the revolutionary armies and involved into the struggle of the toiling masses of the towns and villages.

The chief peculiarity of the present economic state of China is the variety of forms that exist side by side in the Chinese economy, from financial capital down to economic anachronisms of a patriarchal clannish character with the predominance of different forms of commercial capital, small handicraft, and domestic industry in towns and villages.

This is the cause of the feeble dissimilarity in the Chinese (meaning that the Chinese differ so little from each other) as well as of the deficiency of the organization of the fundamental politico-social forces of the national revolution.

Along with this are of the greatest importance the revolution of 1911, which, after having taken place, was frustrated, the collapse of the Central Government, which has much increased during the last year, and the fact that in a large part of the country military governmental organizations of the Chinese militarism have been established.

Chinese militarism is a social political force which dominates at present over the greater part of the territory of China. A peculiarity of Chinese militarism is the fact that being a military organization it is at the same time one of the fundamental channels of original capitalistic accumulation in China, which rests on a whole system

of governmental institutions of a semifeudal character. The fact that there exists in China such governmental institutions as the Chinese militarisms is a result of the semicolonial position of China, the dismemberment of the Chinese territory, the backwardness of Chinese economy, and the considerable overpopulation of the Chinese village.

The development of the national revolutionary movement in China rests at present on the agrarian revolution. The economy of the Chinese village presents a picture of the closest interweaving of numerous anachronisms of a semifeudal character with elements of developing capitalism.

The extreme backwardness of the Chinese economy in general, together with the paralleling of landed property in China, the huge number of tenants and semitenants, the primitiveness of the technique of the small, as well as of the large rural economy, the huge agrarian overpopulation, together with the development of commercial agriculture and the process of class stratification in the village—all this exceedingly complicates the general situation in the village and puts a series of obstacles in the way of the agrarian revolution in China.

In consequence of objective circumstances the class struggle in the Chinese village tends to develop in the following directions: Against foreign imperialism, against Chinese imperialism, against the remnants of large landownership, against the nobility, against the usurious commercial capital, and partly against the rich peasants who exploit the others.

The consecutive stages of development of the revolutionary movement in China are characterized by serious regroupings of the social forces. During the first stage one of the chief motive powers consisted of the national bourgeoisie and the bourgeois intelligentsia who sought the support of the proletariat and the petty bourgeoisie.

In the second stage the character of the movement changes and its social base is shifted to another grouping of classes. New and more revolutionary forms of the struggle are developing. On the Chinese arena a new factor of the highest order appears in the person of the laborer's class.

The economic strikes grow into a political struggle against imperialism and become most important from the historic point of view. The proletariat forms a block with the peasantry, which enters into an active struggle for its interests, as well as with the petty town bourgeoisie and a part of the capitalistic bourgeoisie. This combination of forces brought about a politically corresponding grouping of parties in the Kuomintang and the Canton government. At present the movement is on the threshold of the third stage and on

the eve of a new regrouping of the classes. At this stage of the development the motive force of the movement will be a block—of a still greater revolutionary character—the block of the proletariat, the peasantry, and the petty town bourgeoisie, while the greater part of the big capitalistic bourgeoisie will be excluded. This does not mean that the whole of the bourgeoisie, as a class, will quit the arena of the national liberating struggle. Besides the petty and middle bourgeoisie some forces of the big bourgeoisie may also for some time more go hand in hand with the revolution.

But the proletariat will become more and more the leader of the movement at this stage.

In this period of transition of the national liberating movement to a new revolutionary phase the big bourgeoisie will see that the anti-imperialistic struggle effected under the leadership of the proletariat slips away from its control and becomes objectively a menace to its class interests.

It will strive to wrest from the hands of the proletariat the leading part, in order to crush the revolution and will try to exert an influence on the revolutionary movement by means of the ideology of bourgeois nationalism as a counterpoise to the ideology of class struggle.

Parallel to the grouping of the class forces of the revolution the forces of the counter-revolution take also a shape. This latter process is, in its turn, closely connected with the imperialistic policy and develops under its influence exactly in the same way as the development of the national forces is connected with the world-revolution and is effected under its influence (the U. S. S. R. and the western proletariat).

Chang Tso-lin, Wu Pei-fu and Sun Chuan-fang strive to unite their forces to resist the victorious revolutionary movement. This counter-revolutionary block is created under the influence and with the help of imperialism. The big industrial bourgeoisie shows great indecision and tends toward predominance. Seeing that the militarists are no more an effective weapon for crushing the revolutionary movement, imperialism is looking for other allies in the nationalistic movement and resorts to a reconciliatory policy. Imperialism strives to induce the nationalistic bourgeoisie to break off with the revolutionary block. In order to strengthen the position of the agents of imperialism in the ranks of the nationalistic movement, a part of the big bourgeoisie and even some militarists who so far had stood aside of the national revolutionary movement and were even hostile to it begin to side with the Canton government. The aim of this maneuver is to wrest the leadership of the national revolutionary movement from the revolutionary block of the proletariat, the peasantry, and

the petty bourgeoisie and thus to impede the development of the revolution. The inspirator of all these machinations of the counter-revolution is the world imperialism.

In this transitory period when a gradual secession of the big bourgeoisie from the revolution is historically unavoidable, the proletariat must, of course, largely use all these parts of the bourgeosie which still at present take an active part in the struggle against imperialism and militarism.

On the other hand, the proletariat and its party must tactically take advantage of all dissensions among the strata of the bourgeoisie which recede from the revolution, as well as of the dissensions among the different imperialistic groups, by no means forgetting their fundamental aim and conforming to the latter all their strategical maneuvers and tactical steps.

The general prospects of the Chinese revolution becomes very clear when the grouping of the classes is considered from this point of view. Although, historically speaking, the Chinese revolution at its present stage of development bears a bourgeois democratic character, it must get the character of a wider social movement. It is essential that the Chinese revolution should not result in the creation of such social-political conditions as would lead to a capitalistic development of the country. The Chinese revolution which is effected in the period of collapse of capitalism is a part of the general struggle tending to overthrow capitalism and to introduce socialism. The structure of a revolutionary state is defined by the class on which it is based. It will not be a purely bourgeois-democratic state. The state will be a democratic dictature of the proletariat, the peasantry, and other classes that are being exploited. It will be a revolutionary anti-imperialistic government up to the time when it will develop into a noncapitalistic (socialistic) one.

The Chinese Communist Party must strain every nerve to realize in the end this revolutionary aim of taking the way to a noncapitalistic development. Otherwise, i. e. if the bourgeoisie obtains victory over the proletariat and the bourgeoisie that leads it, the power in the country will practically fall again into the hands of the foreign imperialists, even though in new forms of domination.

The further development of the prospects of the Chinese revolution depends, in the first place, on the part which is played by the proletariat. The events of the last years have shown that a militarist revolutionary national front can be organized only under the leadership of the proletariat. The struggle against the hegemony of capital is successfully carried out only under the hegemony of the proletariat. This is a fundamental principle on which defines the tactic of the Chinese revolution.

The feudal militaristic cliques which are the power de facto in a considerable part of the country are a reactionary force and agents of the imperialism. The native bourgeoisie, as a class, is comparatively little developed and is weak. The economically stronger elements of the bourgeoisie (the financial bourgeoisie and the compradores) are so closely connected with foreign capitalism by commercial and financial bonds that they have never participated in the anti-imperialistic struggle. The industrial bourgeoisie was hand in hand with the national-revolutionary movement, as long as the latter had a bourgeoisie-democratic character; but at the first signs of revolution it either withdraws or strives to resort to sabotage. The petty bourgeoisie (the petty bourgeoisie-intelligentsia, the students, artisans, petty traders, etc.), are, in a country like China, a revolutionary party. It has played an important part in the past and will play one in the future too, but it is unable to act by itself and must go together either with the bourgeoisie or with the proletariat. When the bourgeoisie withdraws from the revolution or conspires against it, the exploited middle classes fall under the influence of the proletariat. In such circumstances the motive power of the Chinese revolution at its present stage is the revolutionary block of the proletariat being the predominant factor in this block.

THE NATIONAL REVOLUTION AND THE PEASANTRY

At the present transitory stage of development of the revolution the agrarian question begins to become acute. It is the central problem of the present situation. The class that will peremptorily take up this fundamental question and will be able to give a radical solution of it, will become the leader of the revolution. In the present state of things in China the proletariat is the only class which is able to carry out a radical agrarian policy, which is the conditio sine qua non of the victorious issue of the antiimperialistic struggle and the further development of the revolution.

The force of the Chinese militarism consists on one hand, in the support which is extended to it by foreign imperialism, and on the other in the support on the part of the class of native landowners. The domination of the militarists is founded on the enslaving semi-feudal system of oppressing and exploiting the hundreds of millions of peasants by the military-bureaucratic administration, the landlords, the nobility, and the commercial and usurious capital, a system that grows up on the fact that the peasants have either no land or very little and are therefore compelled to become slaves of the landowners and usurers and supply the towns and armies with millions of coolies. The problem of throwing off the yoke of the imperialists and of exterminating all remnants of old feudal rela-

tions, the problem of national liberation, of the struggle for the revolutionary reformation of the inner social relations, all of which are organically connected, form the problem of the Chinese revolution. In order to overthrow definitely the militarists, it is necessary, as a part of the struggle against imperialism, to develop the economic and political struggle of the peasantry which forms by far the majority of the population. The apprehension that the fact of the class struggle in the village becoming acute might weaken the anti-militarist front is baseless. The collapse of the second People's Army (Kuominchun) brought about not by the counter-revolutionary forces, but by the revolt of the discontented peasantry, bears witness to the dangers with which this situation is fraught.

The fact that the agrarian question is not handled boldly and that the numerous political and economic demands of the peasants are not supported is dangerous for the revolution. The refusal to give the question of the agrarian revolution a conspicuous place in the program of the national liberatory movement for fear of irresolute and unreliable cooperation on the part of the capitalistic class is a mistake. This is not a revolutionary policy of the proletariat. The Communist Party must not commit such mistakes.

A peculiarity of the present situation is its transitory character: the proletariat must choose between the prospect of forming a block with the higher strata of the bourgeoisie and the prospect of a further consolidation of its alliance with the peasantry. If the proletariat does not put forth a radical agrarian program, it will be unable to draw the peasantry into the revolutionary struggle and will lose the hegemony in the national liberating movement. The bourgeoisie will again play the leading part under the direct or indirect influence of the imperialists. In the present circumstance this may lead to the strengthening of the position of foreign capital in China and to the consolidation of imperialism.

The Canton people's government will not be able to keep in power and the revolution will be unable to win a complete victory over the foreign imperialism and the native reaction as long as the question of national liberation will not be identified with the agrarian revolution. The growing process of stratification of the classes in the rural regions makes acute the struggle between the mass of the peasantry and the classes that exploit it. This class stratification and the persistent struggle that ensues from it require strict attention on the part of the Communist Party, which must head the present movement and develop it by means of proper economic and political slogans.

Admitting that the Chinese Communist Party must put forth the demand of nationalization of the land as the fundamental demand of the agrarian program of the proletariat, it is at present neces-

sary to differentiate the agrarian in conformity with the economic and political peculiarities and in different regions of the Chinese territory.

In the questions concerning power which have already been raised by the peasants' movement the Communist Party must support the tendency to overthrow the autocracy of the nobles and the village authorities in the villages and to substitute for the old semifeudal officials the lower organs of the revolutionary authorities who carry out the decrees of the revolutionary government and defend the interests of the fundamental mass of the peasantry. The participation of the peasants in the constitution of the organs of the district authorities must also be insisted upon.

In the territory of the Kuomintang national government the program of the agrarian revolution must be put in a concrete form. The Communist Party and the Kuomintang must immediately carry out the following measures in order to attract the peasantry on the side of the revolution:

(*a*) A maximum reduction of rents.

(*b*) The canceling of various kinds of taxation of the peasantry and introducing instead of them a single rural economic progressive tax.

(*c*) The maximum regulation and alleviation of the burden of taxation resting on the fundamental mass of the peasantry.

(*d*) The confiscation of lands belonging to monasteries, churches, reactionary militarists, and those compradors, landlords, and nobles who carry on civil war with the Kuomintang government.

(*e*) The securing for tenants of the right to perpetual leasehold of the lands they cultivate and the fixing of a maximum rent by the peasants' unions and the representatives of the revolutionary authorities.

(*f*) The granting of full support by the Canton government to the interests of the peasantry and, among others, the protection against oppression on the part of landowners, nobles, and usurers.

(*g*) The disarmament of the mintuans and all other detachments of the landowners.

(*h*) The arming of the poor and middle class peasants, submitting all such armed forces to the organs of the revolutionary government.

(*i*) A maximum support to peasants' organizations on the part of the government to peasants' organizations, including peasants' unions.

(*j*) The organization of cheap credit on the part of the State; the combating of usury and the support of peasants' organizations and mutual assistance.

(*k*) Help on the part of the government to cooperatives and organizations of mutual assistance.

It is the duty of the Communist Party to induce the Canton government to carry out these measures as transitory to a more developed phase of the agrarian revolution. This very important task will be accomplished by means of forming peasants' committees under the guidance of communists. In the process of the development of the revolution the peasants' committees will acquire authority and power, which are necessary to realize the above-mentioned demands and will intensify the struggle by producing new demands of a more radical character. The peasants' committees are the base of the people's government and army in the rural regions.

In the parts of the country which are still controlled and governed by the reactionary militarists the duty of the Communist Party is to incite the peasantry to fight feudalism, militarism, and imperialism. In these regions the revolutionary work among the peasantry is especially important, because it will be the best means to break up the reactionary armies. *The communists must use all peasants' organizations, such as the "Red Spears," and establish their influence over them.*

The attitude of the peasantry toward the revolution depends to a considerable amount on the behavior and actions of the national armies. According to the good or bad behavior of the revolutionary armies, the peasants judge of the new government. On the behavior of the army, on its way of dealing with the peasants and landowners, and on its willingness to help the peasantry, depends the attitude of the peasantry to the new government. It is true that the revolutionary army met everywhere with an enthusiastic reception on the part of the peasantry, but it is also true that this enthusiasm abated with time. The needs of a long and difficult military campaign are entailing new hardships for the peasantry. But the zealous support which the peasantry has given the revolutionary armies will be stable if the communist and other revolutionary elements who lead the movement will compensate the peasantry for their temporary hardships by means of a regular and bold agrarian revolution, and if they take root in the mass of the peasantry.

THE COMMUNIST PARTY AND THE KUOMINTANG

The imperative necessity of obtaining an influence over the peasantry dictates also the relations which should exist between the Communist party on one hand and the Kuomintang and the Cantonese government on the other. The mechanism of the national-revolutionary government presents a very effective way to approach the peasantry, and the Communist Party must avail itself of this

mechanism. In the recently liberated Provinces a governmental mechanism of the type of the Canton government will be established. The duty of the communists and their revolutionary allies is to penetrate into the mechanism of the new government in order to put into practice the agrarian program of the national revolution. This will be achieved by using the governmental mechanism for the confiscation of land and the reduction of taxes and for the lending of real force to the peasants' committees, thus gradually carrying out reforms according to the revolutionary program.

On this and many other similar reasons the opinion that the Communist Party must give up the Kuomintang is erroneous. The whole process of the development of the Chinese revolution, its character and its prospects, demand that the communists should remain in the Kuomintang and continue their activity in it. In order to increase their activity in the ranks of the Kuomintang with the aim to promote the further development of the revolutionary movement, the communists must enter into the Canton government. Since the Canton government was created the power has practically been in the hands of six commissars of the right wing of the Kuomintang. In spite of the fact that the Canton government could not exist without the support of the labor class, the laborers and peasants, even in the Province of Kuantung, had to overcome all sorts of obstacles. Recent events have shown that the communists must enter into the Canton government in order to support the revolutionary left wing in its struggle against the weak and wavering policy of the right wing. The extension of the power of the Canton government over a considerably larger territory makes the question of the participation of communists in the national government more pressing than ever.

The Communist Party of China must strive to have the Kuomintang developed into a real people's party, into a solid revolutionary block of the proletariat, the peasantry, the petty town bourgeoisie, and other oppressed elements which have entered into a decisive struggle against imperialism and its agents. To this end the Communist Party must act as follows:

(1) Systematically and persistently struggle against the right wing of the Kuomintang and the idealogy of Ta Tsi-Tao and their endeavor to change the Kuomintang into a bourgeois party,

(2) Give a proper form to the left wing and enter into close collaboration with it, but without trying to substitute in it members of the Communist Party in the work of leadership, and

(3) Persistently criticise the center which vacillates between the right and left wings, between the further development of the revolution and an agreement with imperialism.

PROBLEMS OF THE CHINESE REVOLUTION AND THE CHARACTER OF THE REVOLUTIONARY GOVERNMENT

Lenin wrote: "Previous to the epoch of the world revolution the struggle for national liberation formed a part of the general democratic movement. Now, since the victory of the soviet revolution in Russia and the beginning of the period of the world revolution, the struggle for national liberation is a part of the world proletarian revolution."

The program of the Chinese revolution and the structure of the revolutionary state it has produced must be established according to this conception. The process of class differentiation, which goes along with the development of the revolutionary movement, confirms this conception. The Canton government, in spite of its bourgeois democratic character, contains in its essence embryons of a revolutionary petty bourgeois state—of a democratic dictature of a revolutionary block of the proletariat, peasantry, and petty town bourgeoisie. The petty-bourgeois democratic movement becomes revolutionary in China because it is an antiimperialistic movement. The Canton government is a revolutionary one, first of all, owing to its antiimperialistic character. Being first of all antiimperialistic, the Chinese revolution and the government created by it must strike at the roots of the imperialistic power in China. The waiving of unequal treaties and the canceling of territorial concessions are not sufficient for the weakening of the positions of imperialism. The blow must be dealt at the economic foundation of the imperialistic power. This means that the revolutionary government must gradually nationalize railway concessions, mills, mines, banks, and enterprises belonging to foreign capital. By such acts it will at once widen the narrow limits of the bourgeois democracy and will enter the stage leading to revolutionary dictature. It would therefore be a mistake to confine the problems of the Chinese revolution (1) to the destroying of imperialism, and (2) to the abolishing of the feudal anachronisms, pretending that at its first stage the revolution bears a petty bourgeois character. The Chinese revolution can not destroy imperialism without overstepping the limits of a bourgeois democracy. As things stand at present the proletariat will lead the peasantry to the revolutionary struggle. The movement tending to abolish feudalism which is effected under the hegemony of the proletariat must needs change into an agrarian revolution.

In view of these peculiarities the problems of the Chinese revolution are as follows:

(*a*) The nationalization of rail and waterways;

(*b*) The confiscation of big enterprises, mines, and banks which have the character of foreign concessions; and

(*c*) The nationalization of the land which must be realized by means of consecutive radical reform effected by the revolutionary state.

THE COMMUNISTIC PARTY AND THE PROLETARIAT

In order to play a leading part in the revolution, the Chinese proletariat must consolidate its class organizations—political as well as economical ones. The foremost task of the Communist Party is the organization and education of the proletariat for this historical part. The numerical inferiority and the youngness of the Chinese proletariat must be compensated by a powerful organization and the clearness of its ideology.

The general federation of professional unions, which already comprises hundreds of thousands of industrial workmen as well as the national unions of railway workers and seamen, are the base of the Communist Party. It is the duty of the Communist Party to strengthen these organizations by attracting into them great masses of workmen. During the national revolutionary struggle of the last two years the workmen's class has displayed a great force. In this active struggle it has acquired hegemony in the revolutionary movement. On the base of these traditions and achievements the organizations of the laborers' class must be strengthened and developed as follows:

(*a*) A mass of industrial unions must be created and all such unions must be amalgamated; the Chinese federation of professional unions must be consolidated.

(*b*) The work among the masses must be intensified; the contact of the leading organs of the professional unions with the mass of Chinese workmen, the attracting into professional unions, besides industrial workmen, also tradesmen, workmen of domestic industry and of small workshops, as well as cultural laborers.[1]

(*c*) Greater attention must be paid to the economic struggle of the workmen, which must grow into a political struggle; tactics must be worked out for the strikes movement; mutual help and strike funds must be organized, cooperatives, etc., must be created and assisted.

(*d*) Education of the workmen's masses must be intensified by means of counteracting the reformatory methods.

(*e*) The contact between the movement of the Chinese professional unions with those of the whole world, especially with those of the far eastern countries, must be consolidated.

In order to attract into the movement the mass of the workmen's class and to strengthen the position in the national revolution, the

[1] Teachers, etc.

Chinese Communist Party must carry on agitation insisting on the following demands:

(*a*) A complete liberty of action for the peasants' and workmen's organizations; the legalization of the professional unions; the promulgation of liberal laws on professional unions; the right of strikes.

(*b*) Legislation relating to labor, eight-hour workdays, weekly rest day, maximum pay.

(*c*) Social legislation: sanitary inspection and conditions of labor, housing question, insurance relating to illness, mutilation, invalidation, and unemployment; protection of women and children's labor; prohibition of women's night labor; prohibition of labor in factories by children under 14 years.

(*d*) Organization of factory inspection.

(*e*) Canceling of the system of fines and corporal punishment.

(*f*) Removing of all sorts of military and police detachments from the factory premises.

(*g*) Coping with unemployment; influencing of the unemployed by the professional unions; organization of labor exchanges connected with the professional unions.

At the present stage of the revolution there is a great fund of revolutionary energy that has not yet been fully exhausted, viz. the masses of town domestic workmen and artisans who are being ruined by imperialism and are manifestly hostile to foreign capital. It is the duty of the communist vanguard of the proletariat to organize and attract these masses into the stream of the national revolutionary movement. Among others, the Chinese Communist Party must to this end strive to obtain for these people (1) the alleviation of the tax burden; (2) the organization of unions of domestic workmen and artisans; (3) the organization of workmen associations.

THE TASK OF THE COMMUNIST PARTY AS REGARDS ORGANIZATION

The Communist Party of China is an organized force. It has leaders, forms its own cadres, and leads the masses. The activity of the party has already acquired a considerable extension and a stable form of organization. During the last half year the party has made great progress in filling its ranks, and this growth has chiefly been made by adding to it labor elements.

The peasants' part of the Communist Party is not numerous, yet the party is already doing extensive work among the peasantry.

One of the chief problems which the Chinese Communist Party is facing at present is the one of extending, deepening, improving, and intensifying the work of education within the party.

The party has done a great deal in organizing a committee of communist young men. The Chinese Young Men's Committee has

increased numerically and is active in * * * of the work. The young people are a great revolutionary force in China. The revolutionary students and the young workmen and peasants are a force which can considerably accelerate the beginning of the revolution if they are submitted to the idealistic and political influence of the Communist Party. Nobody feels the imperialistic oppression as deeply and sharply, no one feels the necessity of fighting this oppression as strongly as the young men. This fact must be fully taken into consideration by the Chinese Communist Party and must stimulate its activity among the young men.

One of the fundamental problems of the party is the struggle for its open existence.

New members must be enlisted, especially in industrial regions. The new members must be instructed by organizing for them short courses of lectures and conversations on questions concerning the program and tactics, and by making them participate in the daily work of the nuclei and through the latter in the whole work of the party.

A collective direction must be firmly established in the organization from the central committee down to the nuclei in the factories and in the street.

The best party workers must be more energetically drawn into the leading party work. The most persistent work is required in the strengthening and increasing of the cadres of the party. Special attention must be paid to prepare secretaries for the nuclei and leaders of fractions of mass organizations, as well as staffs of leading committees in the Provinces and districts. The central committee and the provincial committees must have permanent traveling instructors chosen from the best local party workers.

Cadres of traveling organizers for work in the villages must also be formed.

The activity and self-dependence of the lower active organizations, the nuclei, and the general meetings of the members of the party, etc., must be intensified.

The strengthening of the fractions, especially those of the professional unions, the leading organs of peasants' unions, and the organizations of the Kuomintang, must be consolidated. A systematic and firm guidance in the work of the fractions on the part of the party must be secured. They must help to connect the revolutionary army with the labor class and its organizations, showing them distinctly how important this help is to secure victory in war.

THE ARMED FORCES OF THE NATIONAL REVOLUTION

The national revolutionary army is the greatest factor which brings about the victories over Sun Chuan-fang, and the extension of the territory over which the rule of the national government extends. The national revolutionary army has played and can play in future its part only on condition that the revolutionary consciousness of the soldiers and their commanders will be strong. It is therefore necessary that energetic political work should be not only done in the fundamental corps of the national revolutionary army, but that such work should also be organized among the politically uninstructed troops that have joined the national army, which can be done by means of traveling political workers. The Chinese Communist Party must display the greatest energy in order to intensify the political work in the army and to strengthen the left wing of the Kuomintang in the military nuclei.

All political workers must inculcate on the mass of the army the necessity of acquiring the confidence and the support of the mass of laborers, as well as of establishing a connection with the Chinese revolutionary organizations for a common action against the enemies of the national revolution.

In connection with the victories of the national revolutionary army, it is necesary to explain to the masses that without their cooperation the overthrow of the militarists by the people's armies can not bring about a serious victory, and that only the strengthening of the revolutionary organization and the struggle of the masses themselves can lead to such a victory.

One of the chief tasks of the Chinese Communist Party is to induce the mass of laborers and the labor organizations to lend their full assistance to the army and to its military work. They must help to connect the revolutionary army with the labor class and its organization, showing them distinctly the importance of * * * for the victory in the military action * * * (half line burned).

Considering that an armed struggle is unavoidably going to develop in the Chinese village, the Communist Party must take all measures to induce the National Government to lend effective help, by means of military instruction, armament, and supplies, to peasants' detachments and organizations in order to get more influence on the revolutionary movement of the mass of the peasantry.

THE PROBLEMS OF THE COMMUNIST PARTY IN THE IMPERIALISTIC COUNTRIES

One of the most important and urgent tasks of the communist parties of the imperialistic countries is to support by all means the

Chinese revolution. This support must be carried out in the following way:

(*a*) Agitation against military intervention in China. The danger of foreign intervention in China must be explained to the mass of the proletariat. The imperialistic policy of proving civil war in China and of lending financial and military help to the militarists must be exposed.

(*b*) Demand of the withdrawal of foreign troops from Chinese territory and of naval forces from Chinese waters.

(*c*) Propaganda among foreign troops and sailors in China.

(*d*) Agitation in favor of immediate recognition of the Canton government as the real national government in China. These demands must be put forth at mass meetings and demonstrations of protest. Social democratic and nonparty workmen must be drawn into this compaign.

A true copy. (Signed) KISSINKA.

[(*G*) Report of the chief of the South China group to Comrade Suvaroff on conditions in his "group." This report states that "*Chinese generals and officers are not only completely ignorant as regards the art of war, but also most unbalanced in all other respects. Even their common, routine work can yield desirable results only with Russian advisers.*" On the first page of the report are directions in the handwriting of Egaroff, the Soviet military attaché at Peking.]

CHIEF OF THE SOUTH CHINA GROUP,
No. 18, Canton, January 13, 1926.

REPORT TO COMRADE SUVAROFF

[Very secret]

I beg to present herewith a draft of the statutes of the South China group of military-political workers, together with the list of the staff of the group and the budget of salaries and other expenditures of the group.

1. So far the group had no statutes approved by the Center, and therefore it had no definite aims before it nor had it any solid organization.

Two years work of the group and progressive molding of the military forces into the United National Revolutionary Army give, in my opinion, a full possibility of bringing clearness as to the problems which are before the group as well as to its organization.

Continual growth of the group makes it difficult to unify the consciousness of its tasks and brings complications into mutual relations of the members of the group. Therefore the drawing up of statutes for it has become necessary, and they are now presented for your approval.

With the object of making the statutes as clear, complete, and coordinated as possible, their draft has been previously *worked out by*

a commission of leading workers and then passed by the general meeting of the group.

I am not going to dwell here upon the tasks of the group or relations and duties of its workers because, in my opinion, on principles these questions hardly can give rise to any arguments. I will only draw your attention to two questions: (1) *Scope of the work of the group*, and (2) *Penetration of* its workers into the organism of the national revolutionary army.

In compliance with the ideas of the statutes, the work of the group must be all embracing, and the penetration of its workers must go as far as regiments. For that reason, in the original project of the statutes, appointment of advisers to *regiments inclusively* has been planned. However, as it would make the staff of the group too big and expenses too heavy, I was obliged to limit myself by introducing assistant divisional advisors, as I hope that through intensive discipline of the troops in time of peace we may be able to direct the work in each regiment. During the period of military operations those *assistant divisional advisers* will be attached to the regiments intrusted with most responsible tasks.

This penetration of the workers of the group I think is absolutely necessary because in the nearest future we will have no chance to get and to prepare a commanding personnel which could be satisfactory in a military aspect; still less can we hope that it will be satisfactory in a political respect.

Chinese generals and officers are not only completely ignorant as regards the art of war but also most unbalanced in all other respects. Even their common routing work can yield desirable results only with Russian advisers. That the popularity of Russian advisers is great, with their enormous political, military, and moral influence, on any general or officer in the ranks of the national revolutionary army, is beyond doubt. However, on account of their inconsistency, occasional meetings and conferences with them are absolutely insufficient. It must be borne in mind that our comrades have to work through interpreters and mostly very poor ones, and thereby are obliged to spend three times as much time as under ordinary conditions. For that reason it is impossible for them to combine several duties, even in case of military units being stationed at one point.

2. The staff of the group is planned in accordance with the statutes. Taking, however, into consideration that it is hardly possible to expect that all the offices which are projected will be filled in the near future, I beg to present simultaneously a plan for a *reduced staff which in my opinion should be filled up without delay.*

In accordance with the reduced staff of the group, for salaries to its members for February and March the sum of M$63,132.25 monthly is required. As for the month of *January:* Taking into account that though the whole staff is yet to be filled, still, some of the workers who have been demanded from the Center will arrive in January, and the salaries of the staff for that month are calculated on the following basis: The sum of M$12,398.75 necessary for the present members of the group plus one-half of the difference between the sum of monthly salaries for the reduced staff (M$26,162.50) and the sum of monthly salaries required for the present members (*M$12,398.75*). This difference being M$6,881.88, the sum required for salaries of the members of the group for January is M$19,280.63.

I beg to present herewith the budget for expenditures for January, February, and March with an explanatory note thereto.

As it is necessary to regularize payment of sums required for salaries and other expenses of the group, I should *ask for ratification of the budget* by telegraph.

Addenda.—(1) Statutes of the South China group (3 copies); (2) Staff of the South China group (3 copies); (3) Scheme of the organization of the group on the basis of the full staff (1 copy); (4) Reduced staff of the South China group (3 copies); (5) Budget for expenditures for January, February, and March with an explanatory note (3 copies); (6) Schedule of emoluments for the workers of the South China group (3 copies); (7) Estimate for purchasing means of transportation for the staff officers of the South China group (3 copies).

(Signed) KISANKA,
Chief of the South China Group.

Translators note.—The following directions were put on the first page of this report by Egaroff, the military attaché of the soviet embassy, in his own handwriting:

"To Seifullin: One copy to *Karakhan.* (1) All questions touched upon in the present report will be discussed in a *special* way. (2) In my opinion, the *greatest attention* to the work in Canton is most important. (3) (*a*) The statutes must be in accordance with the party and political lines; (*b*) the staff of the group and the scheme of its organization must be examined in conformity with my remarks on the scheme, and as a starting point the reduced staff must be taken; (*c*) decision on the question of the staff will define the budget; (*d*) the questions of the reorganization of the army and its munitions will be a subject *of a special discussion.*"—(Signed) *A. Egaroff, 7/11/1926.*

[(H) Draft of telegrams dated June 15 and July 4, 1926, in the handwriting of Egaroff, the Soviet military attaché at Peking, addressed to Galen. These telegrams were found in a file dated 1926. They show clearly that the soviet embassy in China was acting as an agent between the Soviet government and the Canton government in the deliveries of munitions and arms.]

To GALEN:

(1) Your order transmitted to Moscow. The execution of any order requires considerable time, usually two or three months, according to a communication from Moscow. Moscow wants absolute certainty in the matter of payments for supplies. We think Moscow will not be satisfied with your statements referring to payment on delivery. Therefore I ask you to state your wants as clearly as possible and to present us a plan of your orders. It is necessary to fix in a quite concrete form the amount of installments and the dates of their payment on account of orders.

(2) Your 299. Communicate separately which parts of the guns already delivered are missing, except spare parts. We informed Moscow about the carelessness with regard to the forwarding of guns and ordered everything enumerated by you.

(3) Communicate to what extent the National Revolutionary Army is provided with ammunition; what is, in general outline, the distribution of divisions. Let us know about later changes.

NOTE.—Galen is the soviet military advisor to the Cantonese armies.—Ed.

To GALEN, *Canton.*

Yaversky informs:

The cost of supplies already handed over to Canton (until December 1) is 2,500,000 roubles.

(2) 5,250,000 cartridges, 20 machine guns, and 2,000 shells; 2 Arisaka guns and 2,000 shells; seven 3-inch mountain guns and 7,000 shells; 10,000 chemical shells for 3-inch guns; 9 Rosenberg guns and 6,000 shells; 40 bomb-throwers and 4,000 shells; 9 aeroplanes—all concentrated at Vladivostock; cost, 2,000,000 roubles. The greater part already has been sent you.

(3) The Canton government must pay immediately for the transportation from Vladivostock to Canton.

(4) It is necessary to insist that Canton make payments for the supplies already delivered or to be delivered now, also that the dates of payments be fixed.

(5) In the future Canton's orders will be executed as far as possible only on cash payment.

There is a certain inexactness concerning the cost, as indicated by Yaversky; e. g., some articles, which already have been sent from Vladivostock are not included in the indicated cost of 2,000,000 roubles, but this does not change the matter and will be elucidated supplementarily.

[(*I*) Draft of telegram from the soviet military attaché's office to Borodin, Canton, dated August 27, informing Borodin as to amount of ammunition concentrated at Vladivostok. This telegram was found in a file dated 1926.]

To BORODIN, *Canton:*

(1) Concentrated at Vladivostok, 1,300,000 Russian cartridges; 1,200,000 Japanese cartridges, 8,200 shells for 3-inch field guns. Details concerning later data not available. In about one week's time will be concentrated 7,000,000 German cartridges, 250 poods V–1a powder, 8,000 shells for 3-inch mountain guns; spare parts (and) munitions for 15 guns. Cost of the articles to be concentrated, except spare parts of the artillery (and) munitions, 564,148. This amount to be paid on delivery. Communicate immediately about the situation on Kiangsi-Fukien border, also the result of the negotiations about the going over of some unit to the side of the Nationalistic Government.

NOTE.—Borodin is the chief agent of the soviet with the Cantonese armies. The soviet government has officially stated that he has no connection with the government. The amount of truth in this statement is seen in such documents as the above.—Ed.

[(*J*) List of arms and munitions delivered by the soviets to the Kuominchun army between June 5, 1925, and January 4, 1926.]

(Addendum No. 3—Very secret)

Guns	24
Trench mortars	10
"Maxime" machine guns	90
Russian 3-lnie rifles	21,970
Japanese rifles	4,000
Swords	1,000
Spears	500
Shells for guns:	
H. E. shells	11,648
Shrapnel	10,516
Cartridges:	
Russian 3-line	17,931,761
German	2,000,000
Japanese	499,100
Hand grenades	10,000

NOTES.—(1) For guns, 48 sets of artillery ammunition, spare parts and accessories were delivered; (2) for machine guns and rifles, spare parts and accessories were delivered: (3) for shrapnel, time fuzes were supplied: (4) for trench mortars, shell charges, and bases (fuzes) were delivered.

There is no information as to the amount of arms and ammunition delivered in January, 1926. In February and March, 1926, were delivered the following: Three airplanes; airplane bombs; explosive bombs, 200; burning (incendiary) bombs, 100; four gas bombs, 100. Also there have been delivered: Rifle cartridges, 1,000,000; shells, 1,000.

NOTE.—From December 4 on, there began to arrive at Urga the shipment for Feng Yu-hsiang on account of Moscow's order of November 16 as follows: Rifles, 25,000; cartridges, 32,000,000; machine guns (St. Etien), 140; guns, 42; shells, 42,000; *hand grenades*, 10,000; swords, 5,000; *bomb throwers*, 10; *shells for bomb throwers*, 1,000; chemical shells, 10,000; gas masks, 30,000; *flame throwers*, 10; *airplanes*, 6; telephones, 400; cables, 150 pieces (?). With the exception of the *underlined* items which are included in the above list, there is no information that those arms and munitions have been actually delivered to Feng Yu-hsiang.—(Signed) *Kirer*, 4 4 26.

(*Translator's note.*—The above notation beginning from "Note.—From December 4," etc., has been crossed out.)

[(K) A letter signed by C. Chao'es, of the operations section, general staff, nationalist government, to Rogacheff, who, in July, 1925, was president of the military council of soviet advisers attached to the Kuomintang, and who, in the autumn of 1926, was assistant military attaché in the embassy of the U. S. S. R. in Peking. This document shows that the Russian advisers to the Kuomintang Government are soviet officials. Attached to the letter is the card of Rogacheff.]

MARCH 24, 1926.

COMRADE ROGACHEFF:

The news of your departure seems a thunder out of the blue sky. It did not reach us until I was called to go downstairs to take a photo, and then I knew what it meant.

"Departure causes one to be downhearted." The long course of your invaluable service to the national government, which I always observed with much interest, makes me feel more than downhearted at the moment of departure—you whom I honor and respect.

Sullen is my heart, and I have not much to say except wishing you a very enjoyable voyage and every success thereafter.

However, we are not separated, because our spiritual association with each other is much more tighter a bond than physical association. At any rate, if it would be your kindness to do so, I heartily expect that you will present me a photo of yourself, and when you have arrived at your destination give me your address so that I may often receive advices from you by means of correspondence.

Ever sincerely yours,

(Signed) C. CHAO'ES.
Chief of Operative Department,
General Staff, Nationalist Government.

(Card:) Victor P. Rogacheff, assistant of the military attaché, embassy of the U. S. S. R., Peking.

[(*L*) A letter containing instructions to secret agents as to reports which are to be written in invisible ink. This letter was written by the soviet military attché's office on April 4, 1927, two days before the raid took place. A great number of reports written by soviet agents in invisible ink are among the captured documents.]

INSTRUCTIONS FOR SECRET WRITING

Very secret—Personal

1. Address: Mr. John Easton, the General Post Office, Box No. 46, Peking.

2. All reports sent to that address must (*a*) contain information from intelligence agents which is worthy of attention or information from equally reliable sources; (*b*) include authentic, up-to-date political-military information; (*c*) be worded as concisely as possible.

3. Reports which are sent by means of secret writing must be forwarded in magazines, books, price lists of commercial firms, etc. (but on no account in letters), written between the lines beginning with the third page.

4. For the sake of keeping the secret, these magazines, books, etc., must be of the latest dates and on no account old "rubbish." From time to time magazines or books must be sent "blank" (without secret writing). In such cases in the upper right-hand corner of the first page of the book the price of it must be indicated in pencil.

5. No information should be sent in letters. From time to time, however, "blank" letters (without secret writing) should be sent. In these cases extreme caution is recommended and the following conditions are to be observed: (*a*) The addressee must be called by his usual name, this is to say "Dear John"; (*b*) letters must be written in good English (for that purpose common "letter writers" may be used; (*c*) letters must mention some definite matters and should never contain an occasional string of phrases; (*d*) letters written by the same person must always be signed in the same manner.

6. Before a new formula (of the ink?) for secret writing is received, the old one must be used. Special care must be taken that no traces of the pen remain on the paper.

7. All correspondence must be kept up through ordinary letters and never through registered letters or letters with "return receipt."—No. 119/2, *Peking, 414/1927.*

[(*M*) Letter written in the office of the soviet military attaché on April 4, 1927, two days before the raid, informing Moscow that documents stolen from the office of the Japanese military attaché were being forwarded.]

TO MOSCOW

[Very secret—Personal]

ESTEEMED COMRADE: I am sending you herewith, according to the lists, documents with translations as well as files, taken out from the archives of the Japanese military attaché at Peking.

Annexes.—(1) List of translations of the documents, No. 116/r (one copy) and documents in two envelopes; (2) list of files, taken out from the archives of the Japanese military attaché, No. 262 s (two copies) and files under a separate cover.

With comrade's compliments,

— *No.* —, *Peking, 4/4 27.*

[(X) In the following document there are shown the inner working of the soviet intelligence department in China, and how the diplomatic privileges of the embassy were abused for the purpose of prosecuting its activities. The number of soviet couriers equipped with diplomatic passports, and traveling about in China has frequently been commented upon, especially since the seizure at Nanking of the soviet steamer *Pamiat Lenina*, three of the Russian passengers on which claimed to be couriers. It will be noted from this report that it was expressly stated to be one of the duties of the soviet ambassador to supply "the agents of the intelligence department with diplomatic and service passports" and to give them "respective posts in his institutions in order to afford them the possibility of establishing connections with official circles for carrying out the orders of the Center and in order to secure their personal inviolability during their travels and their activity on the spot."]

Sent to: Moscow, 2; Longva, 1; Records, 1.

Report

(Very secret—personal)

THE WORK OF THE INTELLIGENCE DEPARTMENT IN CHINA

Peking, *March 20, 1926.* N230

Aim.—(*a*) The thorough study of the organization and strength of the armed forces of China and the constant examination of the circumstances which have an influence on the development and strengthening of the army; (*b*) the systematic collecting and working out of all information and material concerning the armed forces and military means of China in connection with the assistance afforded by the foreign powers which take an interest in the Chinese actuality (especially Japan and England); (*c*) the timely information of our allied center (Moscow), the local Peking center, and the Siberian military intelligence department via Vladivostok of everything pertaining to these matters—these are the three aims of the intelligence department in China.

The direction and the size of the work are defined by two factors: The possibility of wars between the U. S. S. R., Japan, and China and the possibility of the development of the nationalist-revolutionary movement in China which will contribute to the weakening of the position of imperialism in Europe and America. The first factor dictates the necessity of studying very minutely North China and Korea, as the future seat of the war, their resources and armed forces and their connection with the nationalistic-revolutionary movement. The second factor dictates a similar study of the rest of

China as of a source of all kinds of reserves in the fight against local and foreign imperialists and consequently as of a possible active ally of the U. S. S. R. in its fight against aggression on the part of Japan, England, America, and others.

This fixes also the principal objects of the study, the prospects of the work, its tempo, and its strict limits. For details see our program which must be carried out on the spot in accordance with the aims of the practical work of the political representative (the ambassador) and the military attaché (who directs the activity) and with the directives of the Comintern. (Third International.)

The task of the intelligence department is firstly carried out by organizing a wide and well-manned net of agents, to which end proper people must be found, trained, and guided. The net must so be prepared and calculated in every region that its passing from a state of peace to a state of war could be easily effected. It follows that the organization must be strictly centralized and have parallel branches of its net completely separate from each other.

The form of the organization.—The organs of the intelligence department may, for the time being, dwell under the roof of the institutions of the people's commissariat for foreign affairs (the embassy, the consulates), but the possibility is not excluded of their being established "on the street" under the flag of a commercial firm, a restaurant, etc.

In the beginning it is advisable and more economical to use the official roofs of the political representatives, of the commercial representatives, etc., especially considering the difficulty for European Russians to establish connections with the Chinese. For this work the roof of the instructors in the Chinese armies is necessary, but this is admissible only where the confidence in our instructors has been fully established.

Mutual relations with the agents of the people's commissariat for foreign affairs.—The agents of the intelligence department in China carry out the instructions of the political representative (ambassador) concerning current military matters, and supply him with summaries of their information.

Whenever it is necessary the political representative supplies the agents of the intelligence department with diplomatic and service passports and gives them respective posts in his institutions in order to afford them the possibility of establishing connections with official circles for carrying out the orders of the center and in order to secure their personal inviolability during their travels and their activity on the spot.

The organs of the people's commissariat for foreign affairs are obliged to supply the agents with proper dwelling which would

guarantee the safety of their work and the safekeeping of their secrets.

The relations with the state political department (G. P. U.).—The agents of the intelligence department on the spot must receive directly from the foreign section of the state political department all information concerning military matters.

The whole work of counterespionage must be concentrated in the hands of the foreign section of the state political department, but the results of this work must be timely communicated to the agents of the intelligence department on the spot who set tasks to the counterespionage through the S. P. D.

DENMARK

A. NAVAL

1. Modernization progress.

Even though there may be no regular plans and proposals for the enlargement of the Danish Navy, nevertheless the disarmament proposal which was to turn the navy into a sort of armed police force seems to be dying a natural death. There are certain indications that work is under way to modernize ships so as to make them commensurate with present-day demands. The greatest possible economy will be exercised and the work begun at an early date. Naturally the work in question will be limited to the torpedo and submarine armament, mines, etc.

NOTE.—The above proposal was presented by the incumbent socialist government. Denmark has recently completed two 325-ton submarines.—Ed.

FRANCE

A. NAVAL

1. Foreign cruises.

The light cruiser *Lamotte-Picquet* and destroyer leader *Jaguar* will leave Brest some time in June for the following cruise: St. Vincent, June 16–17; Basse-Terre, June 24–28; Les Saintes, June 28–July 1; Martinique, July 1–8; Trinidad, July 9–11; Cayenne, July 13–15; Pernambuco, July 20–24; Montevideo, July 31–August 4; Buenos Aires, August 9–16; Rio de Janeiro, August 20–28; Bahia, September 1–5; St. Vincent, September 11–12; Madeira, September 16–18; return Brest, September 22.

The light cruiser *Duquay-Trouin* is expected to leave Bordeaux during June for a visit to the following ports: St. Johns, Montreal, Boston, and New York.

This cruise of about 14,370 miles for the *Lamotte-Picquet* and *Jaguar*, as well as that of the *Duquay-Trouin*, is in keeping with the present policy of "sailors at sea."

NOTE.—Mention has previously been made in this Bulletin of the importance which the French Navy is now attaching to flag-showing cruises, the object being to encourage recruiting, improve a poor morale, and increase French prestige. Only the latest and best vessels are so sent. The above ships have recently returned from a cruise to the Near East and to England.—Ed.

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2. *Communist propaganda in Navy.*

The following, taken from the communist journal, Humanité, is of interest as showing the apparent liaison, either real or otherwise, between the communist activities and certain men in the service:

"With the soldiers and sailors; The navy on the move." Under the foregoing title a literary journal published an article eulogizing the navy and its minister. France is spreading out; we have ships crusing in the Baltic, Atlantic, Mediterranean, and a squadron in England.

The author writes that these cruises are to advertise the navy. In a similar strain the author states that the campaign is intensified by posters, tracts, etc. (EDITOR'S NOTE.—Glaring posters have recently been placed in the Paris fair grounds picturing foreign lands with bunches of bananas, various colored parrots, negresses with native headgear, etc., all on the dock awaiting the arrival of the liberty parties.) The real reason for all this propaganda is to obtain more recruits.

If the "poor sailors" who are dying from misery on board the "floating prisons" had the officials of the navy responsible for these posters in their work-worn hands for about five minutes they would soon see how "The navy is on the move."

The sailors on the cruiser *Primauguet*, now en route to the Orient, launch their "cri de souffrance" in a letter dated May 15, 1927, from Djibouti, as follows:

"The passage through the Red Sea was terrible; the heat was terrific, and it was impossible to eat or sleep in our compartment. Everyone was covered with sweat from steam, etc. There were a dozen firemen overcome with the heat."

Ah, you can continue to post your glaring posters, but you can not stifle the cries of discontent coming from the floating prisons" which uncover your wicked propaganda to obtain enlistments.

Not one young worker in the country will exchange his civilian clothes for the miserable life of a sailor.

And, all the "sailors" of the navy, bound together by common suffering and a consciousness of the proletariat classes, are organizing on board ships to await the signal, "Hoist the red flag."

At such a time, the navy will indeed "be on the move" in the service of the proletariat to crush the capitalist exploiters.

NOTE.—See the May and June Bulletins for further information on the subject. Communistic activities are carried on openly in the French Navy to a considerable extent.—Ed.

B. MISCELLANEOUS

1. The general military and political position of France.

[Source: M. I. D.]

France proposes to begin, in the not distant future, the construction of a vast system of fortifications to protect her land frontier. The 1928 budget, which has been practically completed for submission to Parliament, includes a large sum for building a series of fortresses at the most critical points. The scheme is said to envisage the establishment of fortified works straight south to the Mediterranean, including the Alpine region along the Italian boundary.

Such fortifications must protect both the territory and the concentration of the covering army. It will therefore be necessary to place them, if not on the frontier, at least at a short distance therefrom. The war has proven that the object of military operations is always the same—that is, to destroy the enemy's army. Moreover, experience shows that it is not a matter of indifference whether operations be carried on in home territory or in enemy country, and if it is not possible to carry on operations in hostile territory, the French believe every possible effort must be made to stop an invasion at the frontier.

The Government's intentions on this subject were revealed in a speech by Premier Poincare at Bar-le-Duc on May 2. The speech, which is considered the most important that the Premier has made since last summer when he became head of the Government, emphasized the importance of the land fortifications. The Premier said: "Besides the enormous credits for reconstructing the devastated regions, I must inscribe items for applying military measures, which must precede the reducing of the military training to one year, for the reconstitution of our provision, supply and defensive organization on the frontiers."

Public opinion in France appears to be taking an interest in military matters again. It seems appropriate, therefore, that some notice should be taken of the charges of militarism and imperialism so many times made against this nation in the press and elsewhere. This criticism, which has been directed against France ever since the close of the war, has been revived by the passage in the chamber of the bill prescribing the organization of the nation for defense in time of war.

France is surrounded by potential enemies, or frank rivals, on all sides. Two great invasions have been imposed upon her in the last 50 years by Germany. Treaties which operated for her protection in the past (such as that guaranteeing the neutrality of Belgium) have been openly violated, and the treaty of Versailles, as drawn, has

failed to bring to the French people any sense of security, and, indeed, it has failed to convince impartial thinkers that its provisions constitute sufficient protection against Germany. Germany, instead of being broken by the war, seems to have come out of it more powerful financially and commercially than has France.

Great Britain's attitude varies from unconcealed animosity, as during the Ruhr occupation, to lukewarm friendship. England appears to be suspicious of the strength of the French Army, to object to the number and power of her air squadrons, and to resent the building of submarines and commerce destroyers. Another neighbor whose attitude has changed with her increase in strength in the last few years is Italy. If Spain may be disregarded as a possible enemy, all the other frontiers of France require attentive vigilance except that of Belgium, whose dangerous frontier is also on the Rhine.

France's population is stationary at 40,000,000 and her fixed social habits are such that no substantial increase in this population is looked for. Nevertheless, for centuries the French people have preserved with marked persistence their racial characteristics and their culture, and have proven their capacity to defend both during very long periods of profound adversity. This instinct of self-preservation and determination to defend their patrimony is as strong to-day as it has been at any other time. It would appear that many observers confound this instinct of self-preservation with a desire for conquest. If the two have gone together at certain periods of history, it may be said that since 1815 self-defense has prevailed, to the exclusion of any aggressive designs. Of course, reference is not intended to the colonial expansion in which all nations, even Holland and Belgium, had embarked during the nineteenth century.

This being the situation which confronts the Frenchman of to-day, surrounded as he is by enemies or rivals, either anxious or willing to see his country enfeebled, let us examine the sole solution of the problem involved which he believes is open to him. His treasury is low, his taxation is high, every economy must be practiced which is reasonable, but he must be safe from his enemies if he is to exist at all. To him the following provisions are necessary for his security:

(*a*) The maintenance of a military system in continental France sufficient to meet German aggresison when it takes place and, if possible, to carry the war into the enemy's country.

(*b*) The organization of African troops sufficient in number to make up for the lesser home population.

(*c*) Technical research covering mechanical agencies of war—automatic weapons, mechanical transport, gas, antiaircraft weapons—with a view to conserving personnel.

(*d*) The maintenance of an air force sufficiently strong and constantly trained which would make possible the annihilation of Germany's more imperfectly trained air forces upon the outbreak of hostilities and insure that the destruction incident to war would occur on German territory instead of French.

(*e*) The building of frontier defenses to prevent the passage of German troops and also to cover the concentration of the French Army near the German frontier for the reasons given in (*d*).

(*f*) The conclusion of offensive and defensive treaties with States contiguous to Germany having reasons to be afraid of her aggression—Belgium, Poland, Czechoslovakia.

(*g*) The creation of a submarine navy for the purpose of driving Germany's growing commerce from the seas in case of hostilities.

But, on the other hand, France has taken various steps which show a spirit of conciliation and an effort to meet the criticism implied in the above military preparation:

(*a*) The treaty of Locarno, unpopular with the masses but carried through by the Government as a step toward securing peace with tranquility.

(*b*) The agreement to evacuate the Rhine at Cologne, when a strict interpretation of the treaty would have made it possible for French troops to occupy that bridgehead even if the British decided to withdraw.

(*c*) While Germany's alleged secret violations of the treaty have excited uneasiness and protest, these have been in the last three years repeatedly condoned, no military action since the evacuation of the Ruhr having marked France's dissatisfaction with these violations.

(*d*) The French Army has been repeatedly reduced since the war, and a further reduction is now on the point of being effected through making the term of service one year and reducing the number of divisions maintained to 20.

(*e*) The naval program is one which must be considered defensive in character, since it comprises no battleships. The naval history of the war proves that submarines and fast cruisers are weapons of a country acting on the naval defensive. The protection of communications with North Africa is the chief rôle of the new French Navy.

France, though not entirely satisfied with the status quo, realizes it as one existing in fact. She wants to be let alone in her effort to consolidate what she has; she desires no further problems for the time being. The very form of the French Government, the nature of its parliamentary institutions and the character of the political parties, all combine to render wholly impossible a policy of aggressiveness or imperialism such as was practiced by Germany before the war.

It is a matter of common knowledge to every Frenchman that any cabinet, however much it might be bent upon declaring war upon any country, could not possibly carry through the preparations and effect a declaration as long as the constitution of the country and the attitude of political parties remain what they are. There are well over 150 extreme radical deputies in a body of 600, and there are another hundred not far removed from these in their abhorrence of everything military. Changes in the future are more likely to increase this feeling than to lessen it. It was with the greatest difficulty that the French cabinet could get the men and money for suppressing Abd-el-Krim's rebellion in Morocco, although it was known that the fate of all France's Mussulman colonies lay in the balance. How much more difficult then would it be for a war to be deliberately stirred up against a powerful nation for any reasons whatsoever. It is believed that the only thing which could force the French Parliament into declaring war would be the physical invasion of the country. This is a fact which is generally acknowledged by Frenchmen, and they can not understand why outside people do not understand it.

Their fixed idea on the subject is that whatever the nature of the next war, France will come out of it the sufferer; they wish to avoid war by every means consistent with the maintenance of the national integrity. Compulsory military service is accepted with the attendant expenses of a large military establishment because it is believed that if they are not strong enough to defend themselves, and especially if they are not strong enough to carry the war into enemy territory, they will certainly be attacked. As to any assistance that might be given them from any other nation, they are extremely skeptical. Poland and Belgium, for example, will probably only aid France against Germany in case the French Army is strong enough to make it certain that the result will be Germany's defeat.

The most that the stoutest French militarist now hopes for is the maintenance of an army and navy of such strength and constitution as will prevent any neighbor from attacking his country. Military men of all complexions and grades speak of this matter as one about which there is no dispute.

NOTE.—The intention of the French Government to construct these fortresses, combined with the recently passed war-time mobilization act, has caused extensive comment and misgiving over Europe. These acts simply show again that above everything else, France is determined to insure her protection, regardless of the cost. These acts, together with French refusal to withdraw additional Rhineland troops of occupation, have considerably cooled the "Spirit of Locarno" and have increased the uncertainty of the German attitude. See "Germany" in this number.—Ed.

GERMANY

A. NAVAL

1. Progress report of vessels under construction.

Name	Per cent of completion	Delivery
Cruiser Koenigsberg	45	Summer, 1928.
Cruiser "C"	30	Autumn, 1928.
Cruiser "D"	25	Spring, 1929.
Torpedo boat Seeadler	95	May 1, 1927.
Torpedo boat Falke	75	Summer, 1927.
Torpedo boat Albatros	65	Winter, 1927.
Torpedo boat Kondor	65	Winter, 1927.

NOTE.—The cruisers, four in number, are of 6,000 tons, 32 knots speed, and mount six 7.5-inch or nine 5.9-inch guns. The "Emden," the first of this class, is completed. The torpedo boats are of 800 tons, speed 33 knots, mounting three 4.1-inch guns and four 19.7-inch torpedo tubes. There are six of these boats, two completed. These cruisers and torpedo boats constitute the first postwar building program of Germany.—Ed.

2. The new German cruiser "Koenigsberg."

In a short commentary on the new cruiser *Koenigsberg*, the Marine Rundschau (organ of the German Admiralty) states that this cruiser represents an improved type of the cruiser *Emden;* in size it is in conformity with the stipulations of the peace treaty which limits German cruisers to 6,000 tons. Through the most economical utilization of the available displacement, through new constructive methods enabling a saving in weight in the ship's hull, and through the adoption of oil burners, it has been possible to raise the combative qualities of the ship over those of the *Emden.* The armament of the ship will consist of nine 6-inch guns mounted in triple turrets. One turret is located in the forecastle, and two abaft, the forward one of which is superimposed. There are four 4-inch anti-aircraft guns. The torpedo armament consists of four triple tubes.

The vessel is propelled by means of four turbines with reduction gear, both pairs of which operate as cruising turbines and main turbines. There is also a gas engine cruising system which can be coupled to the shafts of the main engines. In place of the four coal burners and six oil burners of the cruiser *Emden* (single-enders), there are six double-ender oil burners. With full load and a speed of 14.5 knots, the vessel will have a cruising radius of about 5,500 miles. With an engine performance of about 65,000 S. H. P. it is expected that the cruiser will attain a speed of at least 32 knots.

Conning tower, fire control stations, and bridge are arranged similar to those on the *Emden. Koenigsberg* is equipped as flagship.

The crew will consist of 500 men. Special care has been taken to provide comfortable quarters for the latter.

The main dimensions of the ship are: Length, 554 feet; beam, 49.8 feet; draft, 17.3 feet; displacement, 6,000 tons.

The first installment for the *Koenigsberg* was appropriated in the budget for 1925; the keel was laid on April 12, 1926; the vessel was launched on March 26, 1927, and should be ready for commissioning in the summer of 1928.

NOTE.—The "Emden" spoken of is the new vessel of this name, sister ship of the "Koenigsberg."—Ed.

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3. Movements of vessels of the German Navy.

According to press reports, the vessels of the fleet command left March 29 on a training cruise to the Atlantic. Extremely rough, stormy weather was encountered in the Bay of Biscay, resulting in considerable damage to the ships. The rudder of the cruiser *Nymphe* was badly damaged, so that the ship had to put in to Ferrol, instead of Pontevedra, by means of a hand rudder. The damage was repaired at Ferrol, so that the ship was able to follow the others after a short delay. The *Amazone* went to Pontevedra in the *Nymphe's* place. After visiting a number of ports in northern Spain, the battleship *Schleswig Holstein* and the cruisers *Amazone* and *Berlin* arrived in Porto da Praia on April 16; the battleships *Hessen* and *Elsass* in Porto Grande on April 16; and the cruiser *Nymphe* in Santa Cruz de Teneriffe on April 17. Owing to the damage just described, the *Nymphe* was not able to visit Porto Grande as originally planned.

The cruiser *Emden*, which is engaged on a world cruise, visited the Kokos Islands, Samarang, Bali, and Macassar, and left for Nagasaki recently.

The geodetic survey ship *Meteor*, which for the past two years has been engaged in a research expedition in the southern Atlantic, left Para for Teneriffe on April 18 and is expected in Wilhelmshaven soon.

NOTE.—The interesting and indicative feature of postwar German naval activities is the continuous and extensive foreign cruising being done. The political, economic, and naval significance of this is apparent.—Ed.

B. AERONAUTICAL

1. Commercial aviation activities.

The treaty of Versailles preventing Germany from manufacturing military and naval airplanes, she turned her attention to and concen-

trated her efforts on the development of commercial airplanes and lines of traffic, with the result that this branch of aircraft activity has made rapid strides, and Germany is said to be leading in the manufacture of commercial airplanes, number of passengers and bulk of freight carried, safety in transportation, and number and density of routes.

In the year 1926, there were 55 routes in operation covering 12,400 miles (an astonishing number considering the limited area of Germany). On an average 24,800 miles were flown daily, while 40,000 passengers, 55,000 pounds of baggage, 264,000 pounds of freight and 275,000 pounds of mail were carried during the year. There are at present 75 landing fields, accommodating daily 120 airplanes.

German industry immediately took up the manufacture of accessories, engines, etc., and benefiting from the extensive experience gained in commercial aviation on so large a scale, is turning out high-grade products.

German manufacturers of airplanes, especially (1) Junkers Flugzeugwerke A. G. in Dessau, (2) Dornier Metallbauten G. m. b. H. in Friedrichshafen, (3) Rohrbach Metall-Flugzeugbau G. m. b. H. in Frankfurt Main, (4) Ernest Heinkel Flugzeugwerk G. m. b. H. in Warneumuende, enjoy a high reputation. Their planes have stood the test of time, giving now universal satisfaction, and the public is showing its appreciation and confidence by favoring airplane traffic in a rapidly increasing measure.

This particular market being so well covered by German manufacturers, there are no foreign airplane manufacturers represented in Germany.

For the same reason, there is at present only a very limited market for American aircraft material and accessories, unless they are of a special kind, which can not be obtained here owing to the raw material not being available in this country or its being more expensive than in the United States, such as special kinds of varnishes, etc.

The use of wood for wings is being generally discarded, as all-metal airplanes are gaining in popularity, especially since the light and durable metal "Duralumin" has put in an appearance. Two of the largest manufacturers of airplanes (Junkers Flugzeugwerke A. G. in Dessau and Dornier Metallbeuten G. m. b. H. in Friedrichshafen) are making all-metal planes exclusively.

American engines, which have a very good reputation here, have so far not been adopted, the firms of Bayerische Motoren-Worke, Munich, and Biemens & Halske A. G., Berlin-Siemensstadt, turning out a very satisfactory product.

NOTE.—Despite the restriction imposed upon Germany by the treaty of Versailles, Germany undoubtedly leads all Europe in civil aviation and in post-war technical progress.—Ed.

C. MISCELLANEOUS

1. Liquefaction of coal.

Germany, in the liquefaction of coal, employes the following processes:

(*a*) The Bergin process, invented by Doctor Bergins.

(*b*) The Interessen Gemeinschaft Farbenindustrie process (Badische Anilin und Sodafabriken—I. G. Farbenindustrie A. G.).

(*c*) The Fischer process, invented by Prof. Franz Fischer, of the Coal Research Institute, of Mülheim-on-the-Ruhr.

Of these three processes the Bergin is the only one that employs coal as the raw material, while the other two utilize carbonic oxide as the initial material, i. e., coal is used in a secondary form.

(*a*) *The Bergin process.*—This process is based upon the utilization of cheap coal, coal dust, and hitherto unmarketable low-grade carbon. Lignite has also been used with good results. It is estimated that from 25 to 30 per cent of all coal mined is small coal or slack of low market value, which in Great Britain amounts to 60,000,000 tons annually, sufficient to furnish all the oil used in England if converted by scientific methods.

The operations involved in the Bergin process include: (1) Pressing the coal after mixing with oil; (2) heating in autoclaves (temperatures up to 600° C.; (3) pressure up to 200 atmospheres; (4) hydrogen added (Catalyzers are not used).

The large trial plant at Rheinau, erected with the aid of Dutch capital, has now been taken over by the I. G. Farbenindustrie A. G., but there does not appear to be any intention to commence practical application of the process in the near future.

For the present, trials are being made by the Gesellschaft für Teerverwertung at Duisburg-Meiderich, managed by Herr Spilker. In these tests coal tar is used as initial material, the object being the production of lubricating oil. Useful results have been obtained, but the process has not yet been developed beyond the laboratory stage.

The patents for this process have been acquired by the I. G., but there does not appear to be any intention to operate these patents alone. It may be assumed that the reason for the purchase of the patents is based upon the desire to secure the valuable experience gained by Doctor Bergins in the development of his process, which is based upon principles which resemble the process belonging to the I. G. Farbenindustrie.

It is of interest to learn that the English syndicate controlling the Bergin process is about to conclude an agreement under which the patents and user rights will be handed over to the International Chemical Combine.

(*b*) *The I. G. Farbenindustrie Process.*—The earliest patents, dating from 1913, refer to trials made with the object of obtaining fluid products by the hydrogenation of carbonic oxide. The trials have been successful, the main product being methyl alcohol, which contains certain oxides such as ketones, aldehydes, and other alcohols. The essentials of the process are: (1) Initial material—carbonic oxide and hydrogen; (2) high pressure up to 200 atmospheres; (3) high temperatures (400°–600° C.); (4) use of catalyzers.

By the operation of this process further mixtures of varying hydrocarbons of a gasoline character and suitable as motor fuel have been obtained. The I. G. Farbenindustrie company is now erecting at the Leuna works, near Merseburg, a large plant for the production of motor fuel by this process. It is said that 100,000,000 reichsmarks will be invested in this enterprise.

The selection of the Leuna works is due to several considerations, the chief one being its favorable situation in regard to lignite fields and the fact that this location will be in the very center of Germany and remote from frontiers which might be threatened. The River Elbe provides transport facilities, and the Mittelland Canal, to be completed within a few years, will give further advantages.

Furthermore, at the Leuna works, chemical processes, in which high pressures are employed, have been practiced for some time and here also are produced ammonia and its salts from atmospheric nitrogen by a process which in principle resembles the I. G. process. So far nothing has been made known as to the proportion between the material and the final products.

The Deutsche Gasolin Aktiengesellschaft, of Berlin-Schoeneberg, is to be the marketing organization for the products which may be expected to be available by the summer.

(*c*) *The Fischer process.*—Prof. Franz Fischer is the head of the Coal Research Institute at Mülheim-on-the-Ruhr. This institution is mainly supported by the Ruhr coal-mining industry, but the I. G. Farbenindustrie A. G. also participates in its support through their Leverkusen works. Professor Fischer's book on scientific coal treatment is a standard work throughout Europe.

He first obtained fluid products (*synthol*) from carbonic oxide and hydrogen by a method similar to that used by the I. G. Farbenindustrie A. G. By further high-pressure treatment the product has been improved and the material thus obtained is called "Synthin," which has given satisfactory results when used as motor fuel.

In the summer of 1925 Professor Fischer visited the United States. During his absence Doctor Tropsch discovered a simplified method based upon carbonic oxide and hydrogen using a temperature of 280° C. under normal atmospheric pressure with catalyzers: Cobalt,

manganese, and iron compounds. The products obtained were fluid hydrocarbons and paraffin wax. The advantage lies in the complete absence of oxygenous products. The difficulties remaining are the poisonous effects of sulphur and the elimination of undesired products. Professor Fischer declares that practical solutions of these problems can be found.

For the production of the necessary carbonic oxide and hydrogen it is intended to use either blast-furnace gas or water gas. Petroleum residue, when transformed to gas and partly burnt, can also serve as initial material. So far lubricating oils have not been met with in this process. The yield is stated to be 100 grams of gasoline from 1 cubic meter of water gas, which is regarded as a very favorable proportion. For the exploitation of this process a research and commercial company has been formed and a small trial plant is now in operation. The cost of one liter of gasoline by this process has been reckoned at 18 pfennigs. In expert circles this is regarded as unduly optimistic.

The foregoing facts indicate that for the present practical importance is to be attributed only to the efforts of the I. G. Farbenindustrie A. G., and these are still not much advanced beyond a trial stage. When the large I. G. Farbenindustrie plant is in operation it will be possible to estimate the practical value of the process.

DISTILLATION OF COAL

In the Central German lignite district are several factories where oil is produced by the dry distillation of lignite. Such factories, which may be regarded as forerunners of the plan now being put into effect, are: The works at Rositz belonging to the D. E. A. interests; the plant of the Riebeckschе Montanwerk A. G. belonging to the I. G. Farbenindustrie A. G., and the works of the Leopold mine at Edderitz near Cothen, belonging to the A. E. G. These factories treat crude lignite by dry distillation but the quantity of finished products is practically of no importance when considering the total requirements of the market for fuel oil and lubricating oil. The quality also is not entirely satisfactory.

One is bound to come to the conclusion that the assumption that Germany is ahead of the rest of the world in coal treatment is not founded on fact. Considerable quantities of oil and motor fuel have been produced in England during the past 20 years by the low-temperature distillation process, besides many thousands of tons of smokeless fuel in solid as well as in powdered form. A plant with a capacity of 100 tons daily worked for several years and has now been extended to deal with 250 tons daily. By the end of the summer these low-temperature carbonization works are expected to turn out

weekly 1,400 tons of smokeless solid fuel for open fires or for industrial purposes in solid or powdered form.

The output of crude oil should be 35,000 gallons per week and over 5,000 gallons of motor spirit, besides other valuable by-products, including gas of high calorific value. The recovery of smokeless fuel, oil and gas is completed in one operation at a conversion cost in large plants of about 5′ per ton, the raw coal having cost only 10′ per ton. This means that the value of coal is more than doubled, and where small coal and slack are used it means that unmarketable carbon is converted into commodities which should do much to reestablish the coal industry.

There are several methods for achieving these results, the best known being the Parker process, which works at Barnsley. Plants operating the Parker process, on which the Government experts have reported favorably, are to be erected in a number of coal fields.

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2. *Economic notes.*

[Source: M. I. D.]

Germany's greatest hopes for foreign expansion have been directed toward Russia, but to date results have not come up to expectations. In the course of the Russian economic year which ended October 1, 1926, nine new concessions were granted to German firms for periods of from 2 to 25 years, making the total number of German concessions in Russia 34. It is understood that American loans have assisted in these ventures.

Intensive efforts are being made, and with some success, toward economic expansion in other nonindustrial regions, such as the Near East and South America. These interests are well served by the well-developed banking and trading organization in foreign countries which was built up in pre-war days.

BEARING OF ECONOMIC SITUATION ON INTERNATIONAL POLITICAL SITUATION

Germany's loss of the war with the resulting reparation requirements have given the nation's economic situation greater than usual political significance. To pay reparations Germany must find markets and export goods, to export she must produce, and to produce she must have credits—any one or all of which touch upon the Reich's political relations with other countries, particularly the Allies and the United States. Many of these relations have been regulated and harmonized by the Dawes plan, Locarno agreements, and Germany's entrance to the League of Nations; but the existing trade deadlock between Poland and Germany and the infringement

on the Reich's economic supremacy caused by the Rhineland occupation also have political backgrounds and can be settled only by political negotiation. Further, Germany's need of markets and her wish to secure an economic foothold in Russia now, with an eye to the day when that great country returns to normalcy, has influenced her political relations both with Russia and the Allies.

The desire to recoup war losses, the pressure of a great and growing population, and the reparation obligations are all economic factors which will impel Germany to cultivate good political relations with other countries for some years to come.

GENERAL CONCLUSIONS

The professional gloom with which the German Finance Minister recently referred to the Reich's economic outlook is hardly justified by the facts, because the industrial revival which made itself felt in 1926 shows every sign of continuing and increasing.

The direct effect of the British coal strike has passed, but the lift which it gave to German economic life generally is still felt. The nation undoubtedly has heavy burdens, but it is better prepared to meet them than at any time since the war.

NOTE.—German economic recovery, since the institution of the Dawes plan, has been phenomenal, so much so that to-day Germany is probably in a stronger economic position than her victors. However, next year will be the crucial one for the German economic structure because at that time the reparations payments, under the plan, are greatly increased, and thenceforth maintain this increase. The subject of German-Soviet relations is so involved, and has such far-reaching effects on all nations and foreign policies in Europe that volumes could be written upon it. Suffice to say here, these relations have become all the more important and influential since the recent rupture between Great Britain and Russia. To-day, admittedly, Germany holds the key to the European situation because of her dual position of close contact with Russia and membership in the league. See Russia and special articles in this Bulletin.—Ed.

GREAT BRITAIN

A. NAVAL

1. H. M. S. "Adventure" and "Amazon."

There are included in this issue three photographs of the new English ships, the mine layer cruiser *Adventure*, and the destroyer *Amazon*.

The *Adventure* is of 6,740 tons, standard, mounts four 4.7-inch guns and has a speed of 28 knots. It is reported that she will carry 1,000 mines of an improved type. She uses Diesel-electric drive for

cruising speeds (see MAY BULLETIN). Attention is invited to her good freeboard and to the mine-laying ports cut in her stern.

The *Amazon* is of 1,330 tons, mounts four 4.7-inch guns, six 21-inch torpedo tubes, and averaged 37 knots on a six-hour full-power trial.

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2. *H. M. cruiser "Berwick" and H. M. battleship "Nelson."*

The graduates of the Royal School of Naval Architecture and Marine Engineering, Greenwich, held a reunion and dinner in London on the 25th of May, 1927. Vice Admiral Sir Alfred E. M. Chatfield, K. C. B., K. C. M. G., C. V. O., Third Sea Lord and Controller, proposed the toast to the Royal School of Naval Architecture and Marine Engineering, and in the course of his remarks complimentary to the construction and engineering branches of the Admiralty, referred to the record of the cruiser *Berwick*, now undergoing trials, in maintaining a speed of 32.35 knots per hour on her full-speed trial, when designed for 31.5, as evidence of the highly satisfactory work being accomplished. He also mentioned, in effect, that H. M. S. *Nelson* would undergo full-speed trials on the 26th of May, and in view of the satisfactory performance of this vessel on her trials as so far performed, he expected that her designed speed would be exceeded, as had been the case with the *Berwick*.

The Third Sea Lord also stated regarding the *Nelson*, in effect, that although the vessel was designed some six years ago and had been a considerable length of time in the building, it fulfilled almost completely the design requirements of a battleship as conceived at the present time, and that in this respect the *Nelson* design is unusual as so often by the time a vessel is completed, Admiralty opinion as to one or more of its design characteristics has changed materially.

NOTE.—The "Berwick" is one of eleven 10,000-ton cruisers building; she mounts eight 8-inch guns. The "Nelson" is the new British battleship of 35,000 tons.—Ed.

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3. *The armament of capital ships.*

[Source: British press]

Upon the completion of the *Nelson* and *Rodney* this year three full years must elapse before the keel of another capital ship can be laid in this country or elsewhere. The "naval holiday" which the Washington treaty inaugurated is to be observed until the end of 1930, and there is no reason to anticipate a denunciation of the compact in the interval. Under these circumstances the future development of the capital ship may not appear to be a question of urgent importance. Nevertheless, it is undoubtedly receiving attention by the leading admiralties of the world. From statements in

H. M. S. AMAZON

H. M. S. ADVENTURE

the American press, the United States naval authorities have already begun to prepare tentative designs for the two battleships which they propose to lay down in 1931, while a recent announcement by the Minister of Marine at Tokyo indicates that Japan considers the replacement of her older capital ships to be essential for her security. We may also be assured that our own Department of Naval Construction will be found ready with its plans when the time comes to build those successors to the *Nelson* class to which Admiral Chatfield referred on the occasion of a recent warship launching. Even on the Continent, where the great ship has been under a cloud for some time past, there are signs of a reviving interest in this type of vessel. Neither in France nor in Italy is naval opinion unanimous in regarding the battleship as an anachronism. Confidence in the powers of the submarine and aeroplane seems to be waning, possibly as the result of experience at maneuvers, which may have shown the capital ship to be less vulnerable to these weapons and more formidable in itself than has been supposed. Or it may be that the views of continental naval students have been modified by their researches into the ample store of war data which is now available. Be that as it may, so long as the capital ship remains standardized at 35,000 tons, only the very wealthiest States can afford to build such vessels. But were the limit of displacement as fixed at the Washington conference to be drastically reduced, it is more than possible that capital units would be incorporated in the building programs of countries which since the war have built only light craft.

There is, indeed, some reason to believe that smaller ships will be advocated at the forthcoming conference at Geneva. It is unofficially reported that Great Britain will suggest a limit of 20,000 tons for future vessels and that Japan will second the proposal. Such a reduction in displacement, provided it were universally accepted, would involve no loss of relative naval strength in any quarter, but, on the other hand, the cost of battleship construction would be sensibly diminished. It remains to be seen whether this proposal will, in fact, be sponsored by the British Government.

In the meantime the question of fighting power in proportion to total displacement forms the theme of a thoughtful paper in the May issue of the Marine Rundschau from the pen of Commander G. Paschen. This officer is exceptionally well qualified to discuss the subject, for it was he who directed the fire of the German battle cruiser *Lützow*, together with the *Derfflinger*, *Seydlitz*, and other consorts of the German First Scouting Group, maintained on that occasion a fire the rapidity and accuracy of which was attested by its results, and to which the British commanders have paid ungrudging tribute. Commander Paschen's views on naval gunnery are thus entitled to careful consideration. They are, no doubt, highly unor-

thodox. Briefly, his contention is that the modern capital ship is overloaded with superfluous guns. The *Nelson* class, for example, mounts nine 16-inch guns, and no other capital ship of postwar design carries less than eight of these weapons. American battleships under construction before the Washington conference were to have mounted no less than 12 guns of this caliber, while contemporary Japanese ships were designed for 10. Commander Paschen maintains, however, that all requirements would be met by an armament of four big guns housed in twin turrets, so disposed as to cover the greatest possible arc of fire. His objections to a larger number of guns are severely practical. At the Battle of Jutland both fleets engaged in salvo firing by the same method, namely, by discharging alternate salvos from the right-hand and left-hand gun in each of the turrets.

Thus ships with four turrets fired four projectiles at each salvo, and, as a rule, the second salvo was not fired until the splash of the first had been observed and reported. Consequently, the interval between salvos was determined by the time of flight, which at the ranges prevailing in this action varied from 25 to 30 seconds. Now even with the mountings in use at the date of Jutland, it proved quite easy to reload the guns in this space of time, so that, had it been necessary, the guns from which the first salvo was fired would have been ready to deliver the second immediately after receiving the "spotter's" report. In a sense, therefore, four of the *Lützow's* eight guns were superfluous when she was engaging a single opponent, since the same rate and volume of fire could have been maintained with only half of her actual armament. The firing of full salvos—that is to say, the simultaneous discharge of all eight guns—was inadmissible for two reasons, first, on account of the tremendous stress to which the structure of the ship would have been subjected, and, secondly, because the splash of so many projectiles would have obscured the target for an appreciable interval, and thus caused a serious delay in correcting the range. On these grounds, therefore, Commander Paschen strongly urges the restriction of the heavy armament of future battleships to four guns. He is all in favor of large calibers, the ballistic advantages of which are, indeed, almost too obvious to need demonstration. Taking two guns, one of 12-inch and the other of 16-inch caliber, with a uniform initial velocity of 850 meter-seconds and a muzzle energy of 15,100 and 35,536 meter-tons, respectively, it has been found that at the end of a flight of 15,380 yards the velocity of the 12-inch projectile has fallen to 520 meter-seconds and the energy to 5,651 meter-tons, the corresponding figures for the 16-inch shell being 618 meter-seconds and 18,834 meter-tons. The energy of the lighter projectile, therefore, declines by 62.6 per cent; that of the heavier only by 47 per cent.

While Comander Paschen has presented a strong case for reducing the number of guns, we are not sure that it is wholly convincing. In our judgment he does not make sufficient allowance for the risk of turret casualties in action, a risk which war experience showed to be extraordinarily great. In the Battle of Jutland disabling hits on gun turrets occurred with alarming frequency. The *Lion* had one of her four turrets knocked out at an early stage of the action; the *Princess Royal* suffered in the same way. On the German side, the *Derfflinger* had two turrets permanently disabled in rapid succession; of the 10 big guns in the *Seydlitz*, four, if not six, were silenced before the end of the battle, and at one period all the eight guns of the *Von der Tann* were out of action through hits or mechanical defects—a fact revealed for the first time in the German official history of Jutland. In view of these experiences, it would appear to be a very dubious policy to limit the armament of a ship to four guns in twin turrets, since two direct hits might suffice to put her whole main battery out of commission. True, by reducing the number of turrets it is possible to give the remaining gun positions improved armor protection, as has been done in the *Nelson* class, but there still remains the danger of the turret being disabled by some derangement of the training mechanism through an outside hit. A turret that is absolutely proof against heavy shell fire has yet to be designed; and until the main armament of a battleship can be rendered much less vulnerable than is now the case we do not think the number of guns could be safely reduced to less than eight. On the other hand, Commander Paschen's recommendations will gain in importance if the displacement of future battleships is restricted by international agreement to 20,000 tons. In that event it will become necessary to reduce either the number or the caliber of the guns, and expert opinion would probably favor the former alternative, in spite of the increased risk of disablement to which we have referred. A demand will then be raised for greater rapidity of fire, a problem with which ordnance engineers are prepared to grapple when the need arises. It is no secret that in certain warships built in this country for foreign governments during the pre-war period the main armament was equipped for a higher rate of fire than was deemed necessary in His Majesty's ships.

Incidentally, the advantages of super-rapid loading were emphasized by Maj. L. Fea, of the Italian naval service, in a paper read before the Institution of Naval Architects at the summer meetings in 1922. That officer's conclusions were closely in line with those reached by Commander Paschen. If, said Major Fea, it were practicable to reduce the speed of loading of all guns below the period of the complete rolling of the ship, or, better still, below the

half period of rolling, the number of guns could then be reduced to correspond with the minimum number of projectiles necessary for each salvo. The number of heavy guns in each ship could thus be reduced by about one-half, without in any way impairing the offensive power of the vessel. "Therefore," it was added, "there would seem to be a possible way of reducing the displacement of battleships in the near future by building 'super-rapid' gun mountings, which would require only 10 seconds between each shot, and possibly even less. Although to-day this seems rather difficult to attain, it does not seem altogether impossible * * *." The foregoing considerations, which for the moment are of academic interest, are likely to assume a very practical importance if the dimensions of battleships are to be further circumscribed by diplomatic action.

NOTE.—The above suggestion to reduce future capital ships to 20,000 tons, now that Britain has completed her two 35,000-ton (or better, 40,000-ton) ships, is prevalent in England, and it will be remembered, was unofficially suggested at the three-power conference.—Ed.

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4. His Majesty's dockyard, Devonport.

His Majesty's dockyard, Devonport, near Plymouth, consists of two yards known as the north and south yards, the latter being the original yard which served the needs of the navy for many years since the first naval establishment there, but which came to be insufficient with the increased size and number of ships, so that the addition of increased facilities was necessary. Unfortunately for the dockyard, the land and water front immediately adjacent was not available, so that the two yards now are separated by a considerable distance, being connected together by a tunnel under the intervening portion of the town through which a narrow-gauge railway track is laid.

THE NORTH YARD

The north yard, where most of the repair work, including all of the larger ships, is carried out, is thoroughly equipped with all the usual shops and other facilities, and contains the office of the admiral superintendent and many other of the administrative offices of the combined yards.

There are four basins in the north yard, one tidal and three nontidal, from which extend a total of six dry docks. The most northern of the basins, known as No. 5 basin, is the largest, being nontidal, and with its main entrance double-locked from the Hamoaze, and with another single-locked entrance. The largest of the dry docks is approached from this basin, and immediately adjacent to it, at the northern end of the yard, is the large ex-German floating dock, which

is able to take the *Hood*, the largest war vessel afloat. The *Royal Oak* was on that floating dock with ample room to spare.

H. M. S. *Courageous*, in process of conversion to an aircraft carrier, was in the large graving dock, but progress on her has been slow and many months must still elapse before she could be ready for service. The flying deck is nearing completion, and the stack and various bridge structures in an "island" on the starboard side of the flying deck are well under way.

Work on H. M. S. *Glorious*, also being converted to an aircraft carrier, is even less far advanced and is being carried forward very slowly even now. The "blisters" on this ship were very evident.

H. M. S. *Cornwall*, one of the first group of the 10,000-ton County class cruisers, is approaching completion now, with the 8-inch guns already mounted and with the expectation of final delivery about next October.

H. M. S. *Valiant* was completing a three months' refit which capital ships normally experience once every two years. She is not on this occasion being "blistered" or altered in regard to her funnel arrangements, as was the *Warspite* during her recent modernization.

Numerous other less important vessels were in the various basins of the north yard and the impression was gained that the yard is well supplied with work for the time being and has satisfactory prospects for the future in that respect.

THE SOUTH YARD

The south yard is a very compact establishment with the layout of shops more advantageously arranged with respect to the berthing facilities than is the case in the newer north yard. The shops are adequate for all characters of repair work and vessels berthed there are handled without the need of much assistance from the north yard.

The main building slip is in the south yard, H. M. S. *Devonshire* now being on the ways and due for launching on October 22, 1927. These ways are capable of handling capital ships and there are two smaller building slips also.

There are four dry docks ranging in size from a very old and very small one to a moderate-sized dock which is just large enough to hold a navy oiler of usual dimensions.

There is only one basin in the south yard, a nontidal one, but the facilities seemed ample for the moderate-sized vessels that are handled there.

Most of the storehouses and accountant offices of the Devonport yard are located in the south yard, as are also the quarters of the admiral superintendent and the principal dockyard officers. These buildings are about a mile from some of the most important activities of the north yard, and the separation of the two yards from each

other is a very great handicap to efficiency and the transport problem between them is quite difficult.

There are about 11,500 men now employed at the two yards, working 47 hours a week.

The quarters and office of the commander-in-chief, Plymouth, are located at Mount Wise, well outside of the dockyard limits, and a very large victualing depot is located in Stonehouse, between Devonport and Plymouth.

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5. Dockyard and naval activities at Portland, England.

His Majesty's dockyard at Portland is a small establishment in so far as repair facilities are concerned, these being only sufficient for the small local craft based there and for minor items of work from vessels of the fleet when in that vicinity. There is a small floating dry dock there capable of handling destroyers and sloops.

The importance of Portland lies in its considerable equipment as a fueling base for the fleet and as an operating base from which various exercises and gunnery practices are conducted by the fleet.

There is a long coaling pier extending from the dockyard in which are located coal pockets, and which is equipped with handling gear for delivering coal to vessels alongside. Part of this equipment is quite modern, whereas some of it is old-fashioned and slow. Light cruisers can barely get alongside this pier, but it is very convenient for the numerous sloops and small auxiliary vessels based at Portland.

Near by the dockyard are erected 22 large oil tanks each of about 7,000 tons capacity, and four smaller ones each of about 5,000 tons capacity, giving a total storage of about 170,000 tons. These tanks are erected on a concrete basin slightly sunk below the level of the surrounding earth surface, and are thoroughly modern in interconnecting piping and pumping arrangements, fire protections, etc. An oil pipe line leads to the coaling pier and larger vessels at buoys off the dockyard are supplied with oil by several barges and one small oiler.

Portland is the headquarters of the antisubmarine flotilla with H. M. S. *Heather*, a sloop, as senior ship. The Antisubmarine School of the Royal Navy is located near by but outside of the dockyard, but it was not practicable to visit it as its activities are regarded as confidential. A limited number of officers and men are given special training there, of which instruction and practice with listening gear are prominent features. Practical experience in locating submarines is gained by frequent operations with the submarines of the Sixth Flotilla based at Portland, and various experimental work along these lines is carried out by the school.

Portland is also the headquarters of the auxiliary patrol force consisting largely of mine sweepers and fishery protection vessels. The sloop *Harebell* is flagship of this force and of the fishery protection service. In these auxiliary patrol vessels the annual training is given to members of the Royal Naval Reserve who would be assigned to mine-sweeping duties in time of war. They spend from one to two weeks on such assignment, being largely drawn from trawlers and other fishery craft. The combination of duties of the auxiliary patrol force and the fishery protection service seems to be a convenient one, and the captain in charge of the latter, in the course of his inspections of the fishery protection service in the *Hærebell*, visits other ports where vessels are engaged in their peace-time training that would be drawn into the auxiliary patrol force in war.

Portland is the base of the Sixth Submarine Flotilla, consisting now of six "H" boats and two "R" boats in full commission, with H. M. S. *Vulcan* as stationary depot ship, and with three "H" boats in reserve. This assignment of a submarine flotilla to Portland is in keeping with the British practice of stationing a flotilla at each of the principal naval ports, all of these being under the command of the rear admiral (S.) with head quarters at Portsmouth and being independent of the submarines assigned to the fleet, though frequently operating with them when the fleet or its submarines are in the vicinity of one of these naval ports. These flotillas based at the naval ports are essentially training ships for new submarine personnel. New officers, after taking the submarine course at Fort Blockhouse, Gosport, Portsmouth, are assigned to one of these flotillas for the first active service in submarine, and first commands are always served in vessels of these flotillas. The submarines are not assigned to Portland for refit or repairs, but merely operate from there as a base, returning periodically to their assigned dockyard for overhaul or leave and liberty.

There are sufficient buoys and berths inside the breakwaters at Portland for the Atlantic Fleet as at present constituted, and the anchorage in Weymouth Bay, near by, is useful for ships operating by day in the vicinity. The fleet comes to Portland quite frequently, and much of its gunnery exercises are conducted from there as the base, there being a fine stretch of water between Portland Bill and Dunstan Head available for that purpose, well clear of the usual steamer route along the coast. Annual regattas and fleet reviews are often held in Weymouth Bay, and H. M. S. *Tiger*, the seagoing gunnery firing ship attached to the gunnery school at Whale Island, uses Portland very often as its base for gunnery work. Very recently H. M. S. *Nelson* has been conducting her first firing tests from Portland.

The waters to the eastward of Portland are also used very often by the fleet for torpedo firing, and there is a small torpedo depot on the Weymouth side of Portland Harbor, which is used for adjustment and upkeep of torpedoes during such operating periods. There is a Whitehead torpedo factory at Weymouth, which is understood now to be very inactive due to lack of Admiralty orders.

In the old days of the Channel Fleet, Portland was used as a general storing yard for the fleet, as well as a fueling base, so that some of the facilities remain there now and are quite out of proportion to the operating needs of the place in its present uses. The naval hospital near by is unusually large for the personnel permanently stationed there, and the naval canteen buildings out of all proportion to their usual requirements, though, of course, when the fleet is in port they serve a useful purpose.

Barracks were hastily erected at Portland during the war for the crews of A/S patrol boats, and still remain available though now used for very few except personnel coming to Portland for their mine-sweeping training. These barracks are known as H. M. S. *Victory XI*.

Portland is not a convenient place for granting liberty, and during the winter the climate is bad there, with an unusual amount of wind and rain. At times the seas break over the sand bank forming the narrow strip of land between Portland and Weymouth, and communication by rail with the rest of England is thus occasionally interrupted at Portland. Portland is essentially an operating base from which exercises of the fleet and of the small craft based at Portland are conducted, its facilities for fueling the fleet at such times being very convenient, but it has but little importance as a dockyard and there are only a small number of officers attached to the shore establishment, practically no enlisted men, and only a very small number of civilian employees, relatively to the three major dockyards at Portsmouth, Devonport, and Chatham.

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6. New Zealand Navy.

[Source: British press]

The New Zealand Government's proposals for a substantial increase in the naval defense vote are evidence of the sincerity with which this subject is viewed in the Dominion. Briefly the proposals to be submitted to Parliament are as follows:

(1) The sum of £1,000,000 will be paid to the British Government as a contribution toward the cost of the Singapore base. This amount will not be paid as a lump sum, but will take the form of annual payments, spread over the period between the present date and the date of completion of the base, estimated at seven or eight years.

(2) A third D class cruiser will not be maintained (as was at one time suggested), but when it is necessary eventually to withdraw the two existing cruisers their places will be taken by two B class cruisers of 8,400 tons. The estimated annual cost of their maintenance will be £300,000 each, as compared with some £230,000 for a D class cruiser.

(3) During the period between the present time and the date when the B class cruisers will be taken over, necessary alterations will be made in the equipment and plant of the New Zealand naval base as required for the upkeep of B class cruisers.

The immediate increase in the vote will be at least £125,000 a year, plus the cost of the Dominion base alterations, and when the bigger cruisers arrive there will be a further charge of £140,000 a year. To British readers these may appear minor additions to a defense account; but it must be remembered that this is a Dominion of only a million and a third population, with expensive development work still making great inroads upon the public finance. For the past five years the naval defense vote has been as follows (excluding annual payments on account of the gift battle cruiser H. M. S. *New Zealand*): Years ended March 31, 1923, £211,225; 1924, £285,-723; 1925, £283,356; 1926, £441,203; 1927 (estimate), £533,828.

The Government proposals represent an immediate increase of at least 25 per cent, and ultimately 50 per cent. Their form was decided following Mr. Coates's consultations with the British Government and Admiralty while the imperial conference was in progress, but before leaving for London, the Prime Minister was firmly convinced that New Zealand should take upon her shoulders a further proportion of the burden of naval defense. He stated in a speech in Parliament just before his visit to England that the Government of New Zealand regarded the provision of an adequate naval base at Singapore as an indispensable necessity for the naval defense of the Empire. The Government was then considering whether or not a third D class cruiser should be added to the New Zealand naval division. It was known, however, that such a vessel was not available, and that it would be necessary in any case to withdraw the D cruisers in seven or eight years' time. The Prime Minister resolved, therefore, to decide about New Zealand's future naval measures after conference with the Admiralty. The decision now made is in favor of a direct contribution to the Singapore base, and, later, the development of the division.

THE BIRTH OF A NAVY

If the British Government had not indicated a special desire for aid with the Singapore project, it is probable that New Zealand would have been in favor of the cruiser proposal, since this has distinct advantages. This country's first contributions toward imperial

naval defense were made by direct grants, increased gradually to £100,000 in 1909. But in 1914 a new policy was adopted with the formation of the New Zealand Division of the Royal Navy. This policy was confirmed by Admiral of the Fleet Lord Jellicoe's report in 1919, and since that time the Dominion has consistently aimed at building up a unit of New Zealand-maintained (and ultimately New Zealand-manned) ships, stationed in these waters, but immediately available for service under the Admiralty when necessity arises.

This policy has two distinct advantages: First, by offering opportunities for naval service it enables us to cultivate the sea sense, which should be latent as we come of sea-adventurers' stock; secondly, it gives the people that direct interest in the Royal Navy for which otherwise they would have to depend upon occasional visits from ships on other stations.

The latter reason is of importance when the people have to be educated to a sense of their own naval responsibility. New Zealanders for long have been defended on the sea by Great Britain, almost without charge. They must be brought gradually to see that this is their business.

It is only fair to say that New Zealand Governments have recognized for years past that the present position is inequitable and can not be maintained. Mr. Massey recognized this, and his government initiated a policy which would provide for a progressive adjustment on lines recommended by the Admiralty. The Admiralty program was, in brief:

(*a*) Maintenance of nucleus of se going squadron capable of expansion by cruisers and ocean-going submarines.

(*b*) Provision of oil reserves in the Dominion.

(*c*) Provision of bases, docks, depots, and reserves of stores and fuel for war vessels.

(*d*) Provision of local protection of trade and storage of guns for merchant ships and their escorts, and providing trained personnel for them.

(*e*) Provision of mobile defence and mine-sweeping organization.

With all these recommendations considerable progress has been made: but it has been necessary to advance slowly lest by proposing too much opposition should be provoked.

The proposals submitted by Mr. Coates are nevertheless bound to encounter some opposition. The Labor Party, strongly pacifist, and in defense most economical, has already announced its disapproval. This opposition may be reinforced from other quarters and for other reasons. Times are not as prosperous as they have been, and there are many calls for economy. Politicians who are not pacifists may seize upon this as an excuse for further postpone-

ment. Such objectors are unlikely to argue that the burden is one which the Dominion should shirk indefinitely, or that naval defense is unnecessary, but they may seek to justify delay until revenue is more buoyant. To such arguments there can be but one answer. We have allowed the debt to remain unpaid for long; but that is no sound reason for further denial of responsibility. The majority of the people of the country will share Mr. Coates's view as to the prime necessity of naval defense; and his courage in taking a bold line in accordance with his convictions is certain to win warm approval.

NOTE.—New Zealand now supports two cruisers of 4,700 tons ("Diomede" and "Dunedin"). The above program will be very welcome to Great Britain, financially as well as morally and politically.—Ed.

B. AERONAUTICAL

1. Casualties on H. M. S. "Furious."

Two accidents have occurred to airplanes from H. M. S. *Furious*, but of these one was not due to deck landing but to an error of judgment in taking up formation, resulting in a stall and consequent crash.

The other accident referred to was in no way abnormal, and occurred owing to a slight error of judgment by the pilot, who landed very far aft when the ship was rolling and the wind was light and slightly across the swell. In consequence of the latter condition the ship was not quite head to wind. Both aircraft were equipped with normal flotation gear in the fuselage, but this is of little use when a machine is broken.

NOTE.—The "Furious" is the largest of Britain's aircraft carriers, being of 22,900 tons.—Ed.

C. POLITICAL

1. The break with Russia.

Amid what the press described as "lively scenes," Mr. Rosengolz, the soviet chargé d'affaires, and a number of his staff, left Victoria Station on June 3 to begin their return trip to Russia. Their departure was witnessed by several hundred people who occupied themselves in enthusiastically singing the "Internationale" and the "Red Flag." A cordon of police was required to regulate the spectators. Among those present were Mr. Arthur Henderson and Mr. George Lansbury, labor members of Parliament; Mr. Saklatvala, the so-called independent member of Parliament who was some time ago excluded from entry into the United States; and repre-

sentatives of the Trade Union Congress. The farewell kiss bestowed by one of the members of the soviet mission on Mr. Lansbury, whose affection for soviet principles, some Conservatives claim, is based on considerations more material than theoretical, has provoked considerable mirth in Conservative quarters.

Prior to the expiration of the 10-day period accorded the soviet mission and trade delegation to withdraw from England, Mr. Rosengolz, the soviet chargé d'affaires, addressed a third person note to Sir Austen Chamberlain, stating that in order to fulfill all the contracts which had been entered into and to settle all outstanding accounts, he considered it necessary, after the departure of the trade delegation, that soviet citizens who were directors of Arcos and other British companies conducting Anglo-soviet trade in Great Britain and of soviet trading organizations, as well as the departmental managers and necessary staff, should receive permission to stay in England for the liquidation of these organizations. Mr. Rosengolz added that in the event of the refusal of the British Government to issue such permission orders would be given for the immediate liquidation of all the soviet trading institutions and British companies in which the money of soviet citizens and organizations was invested, and that the responsibility for all damages which might arise for soviet institutions and citizens as well as British citizens, as a result of such a speedy liquidation, would rest with the British Government.

In his reply, Sir Austen Chamberlain declined to exempt any Soviet diplomat from the obligation to quit England. A list was transmitted to the soviet embassy of soviet citizens whose continued presence in this country was considered undesirable. Further lists were inclosed of soviet citizens employed in the soviet mission and in the trade delegation regarding whom the government would not hold itself precluded from extending the privilege of remaining in England for the purposes of trade. The soviet embassy was informed that such applications for extended stay in England should be made direct to the Chief Inspector, Aliens Branch, Home Office. Sir Austen's note concluded with the statement that soviet citizens now in this country whose names did not appear on any of the inclosed lists might, in the absence of particular notice requiring them to leave, remain until the expiry of the conditions upon which they had been admitted, and that application might be made in the ordinary course for extension of those conditions.

The excitement in Britain over the Arcos raid and the subsequent breaking of relations has to some extent diminished in intensity, and the British press and public have now begun to give sober thought to the possible consequences of the break. So far as Great Britain

alone is concerned the majority view would seem to be that the Government's action has at least cleared the atmosphere. If no appreciable adverse effect on trade be evidenced, the Conservative Party will doubtless have added a feather to its cap; and if concrete proof has been obtained, as the Conservatives claim, that certain members of the Labor Party are on the soviet pay roll, the Government will have a trump card to play in the campaign incident to the next general elections—that is, if public interest in the question of Anglo-soviet relations can be maintained. Regarding the Empire, the action of Canada in immediately following Great Britain's lead has been hailed with satisfaction, but some uncertainty has been expressed regarding the ultimate effect on India and the more vulnerable parts of the Empire. Undoubtedly one of the chief reasons for the rupture was the hope that it would break the back of Bolshevist propaganda in China and so stop its penetration into India. At the same time there are many people, including not a few prominent Conservatives, who feel that the Government has blundered and who agree with Mr. Lloyd-George that the abrupt severance of relations with a power having a population of more than 100,000,000 people, occupying an enormous territory in Europe and Asia, and coming into close contact with England at so many points is, short of war, one of the gravest things that has been done in England. They fear that the result may well be the unloosening of even greater and more violent soviet propaganda against the Empire than has hitherto existed.

The Government's political opponents, of course, declare that the Die-Hard Tory element in the Conservative Party has got the bit between its teeth and is now pulling a malleable Prime Minister and Foreign Secretary, for domestic political purposes, along a path which will end no one knows where. Conservatives have pointed out that now Great Britain was in line with the United States, which has never recognized the soviet government and has at the same time conducted more business with Soviet Russia than has Great Britain. To this their opponents have replied that the situation of Great Britain and the United States vis-à-vis Russia was not comparable; the United States was far away while the British Empire and Soviet Russia were almost neighboring States; the United States has never recognized the soviet government, but the British Government, rightly or wrongly, did extend it recognition and in so doing presented the soviet government with its chief security, and with Poland, Lithuania, and other eastern European countries hanging in the balance, would inevitably lead to another European conflagration. They have chief claim to diplomatic consideration in Europe. Great Britain, therefore, gave impetus, if

indirectly, to the diplomatic recognition which the soviet government has been able to obtain from European countries, and having this responsibility it should not lightly leave those European countries in midair.

NOTE.—The Anglo-soviet break has and will have far-reaching consequences, the extent of which it is impossible to foresee. The immediate results were the strengthening of the position of Germany and of the United States Government, and the bolder reprisals of the soviet government against its own citizens charged with antisoviet activities. See Russia in this Bulletin.—Ed.

GREECE

A. NAVAL

1. Contract of the British naval mission.

ARTICLE 1

At the request of the Hellenic Government the British Government agrees to a naval mission proceeding to Greece, composed of officers of the British Royal Navy and Royal Air Force.

(*b*) The main object of this mission will be to perfect the fighting efficiency by promoting the training of the Hellenic Navy.

(*c*) If Greece is engaged in hostilities against another power or powers the members of the mission can not be required to take part in any belligerent operations.

(*d*) In the event of hostilities between Greece and any other country, this contract will be terminated if either the Hellenic Government or the British Government require it.

ARTICLE 2

The duties of the mission are to organize and direct the training of the personnel. The mission is under the orders of a captain Royal British Navy, with rank of captain in Hellenic Navy, who is hereafter referred to as the head of the mission.

(*a*) The head of the mission will have direct access to the Minister of Marine and act as his adviser on all matters in connection with the mission and on any other matters as requested by the Minister of Marine.

(*b*) When required by the Minister of Marine the head of the mission will inspect any unit of the Hellenic fleet and any naval establishment.

(*c*) The members of the mission are invested with administrative jurisdiction and executive authority under the provisions in force for the Greek naval officers by the Greek regulations.

(*d*) The head of the mission will act as liaison between the mission, the British Admiralty, and His Majesty's legation.

ARTICLE 3

The original mission will be composed as follows:

Capt. Charles E. Turle, D. S. O., as head of the mission.

One commander or below as director of studies at the naval war school.

One wing commander or below for general training of air forces and in command of naval flying school.

One lieutenant commander or below as staff officer to the head of mission.

One squadron leader or below as technical officer at the naval flying school.

(b) Some or all of the following extra officers may join for the remainder of the period of the contract when considered necessary and as agreed by the Minister of Marine and head of the mission, but preferably within six months after the commencement of the mission.

One commander or below for general training of destroyer flotilla.

On commander or below for general training of submarine flotilla and in command of submarine school.

One lieutenant or flight lieutenant as squadron leader of air base.

One lieutenant commander or below as director of studies at the Gunnery school.

One lieutenant commander or below as director of studies at the torpedo school.

ARTICLE 4

The officers of the original mission are placed at the disposal of the Greek Government for a period of two years, beginning on the date on which they commence their appointments, viz: March 15, 1927, and terminating on March 14, 1929, the necessary period for journeys from and to England, and any balance of leave due for service with the mission being included in this term of service.

(b) The present contract may be renewed with either the same or new officers on a request being placed by the Hellenic Government not less than six months before the expiration of the present contract.

(c) Any new officers, who may be appointed subsequently to the mission will enjoy all the advantages stipulated for in this contract unless otherwise ordered in a new contract.

(d) At the expiration of an officer's contract, the Minister of Marine, in consultation and agreement with the head of the mission, acting under admiralty approval, shall have the power to retain his services for such a period as will enable him to transfer his duties to his successor, and during such period his pay and allowances shall not be less than he has been receiving under the present contract.

(e) As provided in article 1, paragraph (*d*), the Hellenic Government enjoy the right to terminate the contract in the event of hostilities between Greece and any other country, the British Government enjoying the reciprocal right to terminate the contract in the same circumstances.

Except in this contingency, however—that is to say, unless Greece is engaged in hostitlities with any other country—the present contract shall remain in force until March 14, 1929, and can not be terminated before that date except with the consent of both Governments.

ARTICLE 6

All members of the mission will receive a Greek commission appointing them to the rank which they are respectively to hold in the Hellenic Navy, and their names shall be entered in the Hellenic official navy list according to their seniority, which shall be senior to all Hellenic officers of the same grade, but in case of promotion they will have the same seniority in the Hellenic service as in the British.

(b) The officers of the mission shall wear Hellenic naval uniforms during their period of service under the Hellenic Government. The fact, however, of the members of the mission being placed at the disposal of the Hellenic Government and wearing Hellenic uniform shall in no way prejudice their positions as British subjects or as officers of the British Navy or Royal Air Force, and they shall continue to enjoy all the rights and privileges pertaining to their position as such during the whole of their period of service under the Hellenic Government.

ARTICLE 8

If any member of the British naval mission is considered unsuitable by the head of the mission, the latter, acting in consultation and agreement with the Minister of Marine, may terminate his contract from such date as the head of the mission and the Minister of Marine shall decide.

The Minister of Marine will indicate to head of the mission any officer whom he considers unsuitable, but whether the officer is suitable or not is to be decided by the head of the mission alone.

(b) Similarly, if for personal reasons an officer of the British Naval Mission shall desire the termination of this contract in so far as it concerns himself, the head of the mission, acting in consultation and agreement with the Minister of Marine, shall decide the date of the termination of this contract.

(c) Nothing in the above paragraphs shall prejudice the claim of any member of the mission to his full pay up to the date of the termination of this contract as decided by the Minister of Marine and head of the mission, nor to his claim for traveling expenses as laid down in article 11.

ARTICLE 9

One Greek liaison officer shall be attached to the head of the mission, and, if necessary, one liaison officer to each of the other members of the mission. The number of these officers may be increased or reduced after agreement between the Minister of Marine and the head of the mission.

ARTICLE 10

The annual consolidated pay of the members of the mission is fixed as follows:

Captain, head of the mission	£1,800

Besides the above annual sum the Hellenic Government undertakes to pay the rent also for the residence or rooms of the captain, such rent to be paid to the captain quarterly in advance. This rent is not to exceed £50 per month.

Commanders and officers of equivalent rank, i. e., those wearing $3\frac{1}{2}$ stripes in Hellenic Navy	£1,464
Lieutenant commanders and officers of equivalent rank, i. e., those wearing 3 stripes in the Hellenic Navy	1,260
Lieutenants and officers of equivalent rank, i. e., those wearing $2\frac{1}{2}$ stripes in the Hellenic Navy	1,008

(b) The annual emoluments are payable by the Ministry of Marine in advance to the members of the mission on the first day of each calendar month. The amounts are net and are subject to no deduction whatever for any taxes.

(c) The salary is reckoned as commencing from March 15, 1927, for all members of the original mission.

(*d*) The Hellenic Government will provide the head of the mission with a suitable motor car and, when required, a steam or motor boat for his personal use.

ARTICLE 19

The present contract shall have force from March 15, 1927.

(*b*) In the event of there being any difference between the English and Greek wording of the contract the English version is to be accepted.

ARTICLE 20

The Greek Government will pledge itself to keep secret such confidential matter as the head of the mission shall indicate.

Signed, sealed, and delivered in Greek and English.

NOTE.—The British have had a controlling hand in about all of the affairs of the Greek Government since the war. Last year there was a mission in Greece, but it will be remembered that upon the downfall of the Pangalos government the contract was canceled. This year it was renewed. The mission is now functioning in Greece.—ED.

B. AERONAUTICAL

1. Aviation notes.

(*a*) Twenty-five preparatory school airplanes of the Morane-Saulnier type have been ordered and will begin to arrive in June.

(*b*) The schools for aviation mechanics have been united and transferred to the aerodrome at Phaleron. The 75 scholars in these schools, who now complete a term of four years of theoretical and practical instruction, are promoted to become noncommissioned officers and later are eligible to promotion to commissioned rank. A great deal of difficulty up to date has been found, according to the report of the school director, in the difference of preparation which these students have when they join, and endeavor is being made to correct this.

(*c*) The aviation personnel of the navy comprises about 300 officers and noncommissioned officers, including the scholars in the motor-mechanics school.

(*d*) There are 20 official pilots now in Greece, 12 in the school of pilots in France, and 12 in the pilots' school in England, making a total of 44 pilots on the Greek naval aviation list.

(*e*) The chief commander of naval aviation is Captain Vulgaris (not a pilot). The adjutant and secretary of naval aviation is Capt. F. Levidis (not a pilot). Commander of the aerodrome at Phaleron and Tatoi is Capt. C. Zalacost. The assistant chief of the

general staff of the navy for aviation is Capt. C. Aravandinos (not a pilot).

(*f*) The following statistics as regard flying for the years 1924, 1925, and 1926:

Year 1924: During this year there were 2,369 actual flying hours, with a distance covered of approximately 176,000 miles. During this year one aviator was killed. An investigating board found that the accident was due to the fault of the aviator in attempting acrobatic flying, which was not required of him. One aviator was slightly injured in addition to the foregoing. Three airplanes were damaged, although not completely destroyed. Two airplanes fell, without casualties, into an aviation camp, suffering only slight damage. One airplane was forced to land outside of the camp, but was unable to take the air afterwards.

Year 1925: During this year there were 5,457 flying hours, with a distance covered of approximately 406,000 miles. No deaths. Six airplanes were obliged to ground in their camp, forced landings, and four aviators were slightly injured. Four airplanes were obliged to land outside of their camp, but without damage.

Year 1926: There were 6,936 hours of flying, with a distance covered approximately 520,000 miles. Two aviators were killed, of which the death of one was found to be due to his own fault for executing unnecessary acrobatics. The other accident was due to loss of speed at too low a height. Two aviators were slightly injured and four seriously. Thirty-one airplanes were forced to land outside of their camp, without accident and with little damage.

During the last three years 14,762 flying hours, with a distance covered of approximately 1,100,000 miles, was marked up to the credit of Greek marine aviation, with a casualty list of three dead. The Greek Navy announce that a trip by airplane costs not more than 20 drachmas a mile at the most for one passenger.

(*g*) The British naval mission is supplying two officers of the Royal Naval Air Force, of whom one is to be the adviser to the chief of naval aviation and one will direct the school of aviation at Phaleron. These officers will be of the rank of commander and lieutenant commander, respectively. They will not be given an increased grade in the Greek Navy. In case of war they can not be made use of by the Greek Government. Their contracts will be from the 1st of March, 1927, for two years, with the privilege of continuing same if desired. These officers took up their duties on the 1st of April. They are only available for duties in connection with aviation.

ITALY

A. AERONAUTICAL

1. Aviation budget.

The Italian Government has approved the 1927–28 aviation budget, amounting to 700,000,000 lire, subdivided as follows:

	Lire	Per cent
General expenses	29, 060, 000	4. 15
Military personnel	27, 960, 000	18. 28
Civilian personnel	10, 640, 000	1. 52
Logistics	88, 000, 000	12. 57
Schools	29, 150, 000	4. 16
Property	78, 300, 000	11. 19
Construction and supplies	301, 060, 000	43. 01
Civil aviation	35, 830, 000	5. 12
	700, 000, 000	

The aviation budgets for former years were as follows:

	Lire
1923–24	260, 338, 000
1924–25	461, 776, 000
1925–26	559, 013, 000
1926–27	699, 978, 000

2. Air force exhibition.

On the twelfth anniversary of Italy's entry into the World War an air-force maneuver was organized over the city of Rome and a parade was reviewed in the afternoon by Premier Mussolini, Air Minister, at Centocelle.

Only land planes of the Independent Air Mass took part in the maneuver. It was planned to have the following machines in the air: 18 B–R–1 day bombers (3 squadrons); 12 Ca–73 night bombers (2 squadrons); 120 Ni–29, A–C–2, A–C–3, C–R–1 pursuit planes (10 squadrons)—a total of 150 machines.

The following was the theme of the maneuver: Two enemy air brigades fly toward Rome for bombardment purposes. Each brigade consists of a bombardment wing and a pursuit wing. The city to be attacked from three different directions, viz, Fara Sabina (northeast), Vigna di Valle (northwest), and Tivoli (east). The forces of the enemy are all day and night bombers listed above and 4 pursuit squadrons (48 machines).

The city's defense is intrusted to a pursuit wing (6 squadrons, 72 machines) and two antiaircraft batteries. These batteries are placed one on the Gicanicolo and the other on the Pincio. They are operated by the militia.

The enemy's principal target was the zone around the Coliseum. Bombardment planes flew at an altitude of 2,500 feet, pursuit machines at 5,000 feet.

On account of weather conditions only 50 machines of the attacking brigades were able to take the air, viz, 3 night bombers, 13 day bombers, 35 pursuit planes.

While the day was clear and sunny, wind was blowing in gusts, at a velocity of 48 miles hour. One Ca–73 night bombardment plane made a drop while over Rome of 240 feet.

Pursuit planes of the defense wing did not take off, so that there were no aerial engagements whatever. Machines of the attacking brigades were absolutely unable to keep their formations, with the only exception of 9 pursuit ships, flying very high, in 3 groups of 3 machines each. The antiaircraft batteries were not very active.

In the afternoon all 150 machines, plus 4 observation squadrons and the P. squadron (propaganda) stationed at Centocelle, were reviewed by Premier Mussolini. The 150 machines were lined up in three rows on the southern part of the field, while the 4 observation squadrons and the propaganda squadron were lined up, also in three rows, on the northern part, facing the first line. Wind was blowing from the north. The eastern part of the field was kept free from any obstacle. The two very long lines formed a V at the vertex of which there were the stands for Premier Mussolini, Italian authorities and officers, the diplomatic corps, etc.

Premier Mussolini walked all along the two lines inspecting all machines very carefully. After the inspection of the organization the machines took off in formations of threes. Only one flight of three A–C–3 took off properly and maintained a very close formation. All other formations were open and loose and in many cases it was difficult to say that any formation existed at all.

For a time it looked as if there might be work for the medical detachment as B–R–1 and A-300-4 were taking off toward the east and directly cross wind while pursuit machines were taking off into the wind and toward the north and were crossing just after taking the air.

In taking off the flight leaders normally opened their throttle wide and pushed off on their own, Nos. 2 and 3 not starting until the flight leader was practically in the air and then swinging off to the right and left almost 60°. They had some little trouble in re-forming in the air.

From observation of take-offs and formations in the air it is evident that little or no formation flying at all is done and that pilots do not care to trust each other in anything approaching a close formation. While the air was quite rough and gusty, formations with intervals of 100 feet or so could have been safely flown. Instead,

with but one exception, noted above, formations flew with intervals of from a couple of hundred feet to almost a mile.

All machines succeeded in taking off. There were no accidents, but that can be attributed to good luck rather than to good management or skillful piloting.

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3. The Italian Aeronautical Academy.

The Italian Aeronautical Academy is provisionally accommodated in the Royal Palace at Caserta (25 miles north of Naples), having been moved from its original quarters at the Naval Academy, Leghorn, in October, 1926. It is anticipated that the permanent buildings for the academy will be completed at Naples (Capodichino) in about two years' time.

The cost of the new buildings at Naples, together with the cost of amplifying the existing airdrome, is at present estimated at about 3,000,000 lire. The airdrome will eventually be three times its present size.

It is understood that the city of Pisa offered to contribute 4,000,000 lire to the Government to have the aeronautical academy retained there. However, Naples was chosen, for the purpose of strengthening Fascismo in that section and also, according to the undersecretary of state for air, to avoid a concentration of the majority of the service schools of the army, navy, and air force in northern and central Italy.

THE SCHOLASTIC YEAR

The year commences on November 1 and finishes at the end of May. June and the first half of July are devoted to examinations. The second half of July is the leave period. August, September, and October are used for summer cruises, visits to the frontier, battlefields, and aircraft factories.

The classroom work is about 25 hours per week, but both in the morning and in the afternoon of each day there is one hour outdoor work in addition.

THE COURSES

The normal course for cadets lasts three years. There are extraordinary or complementary courses lasting 12 months for N. C. O. pilots and complementary officers who aspire to enter the permanent establishment lists.

Cadets also secure admission to the second or third year class by passing a special examination and can thus diminish their time at the academy.

The first class has already completed the three-year course and has left the academy. All its cadets have received commissions as second lieutenants. They are at present at Aviano, where they complete their flying training.

MORALE AND ESPRIT DE CORPS

Very great stress is laid on the necessity for developing these qualities in the cadets, and the means adopted are elaborate. Each class has a captain, its own banner, a mother, and sponsors or military godfathers. Games and exercises enter into the scheme. There is a challenge cup which is awarded annually to the class which secures the highest marks in 15 different (compulsory) exercises—running, jumping, swimming, shooting, signaling, fencing, football, etc.

INTERIOR ECONOMY

Although provisional in character, yet the arrangements made for the instruction and accommodation of cadets are luxurious in the extreme. The palace is one of the finest buildings of its kind in the world and lends itself exceedingly well to the use to which it is now put. The normal courses of the academy have the entire west wing on all floors and cellars.

The instructors' quarters and the complementary courses have the greater part of the east wing.

The royal apartments occupy the south façade and the north façade is devoted to civilian uses, schools, etc.

Practically no structural alteration has been necessary, but a few doors have had to be pierced in the old walls (nowhere less than 14 feet thick). The curator of public monuments has refused to allow heating to be installed, consequently there must be a great deal of discomfort in classrooms and in the messes in winter.

A field adjoining the royal park has been set aside for the cadets and provides sufficient accommodation for football, tennis, and out-of-door gymnastics.

Cadets are housed in dormitories which take an entire class. The furniture in each dormitory consists of an iron bed, a chair, and a ditty box for each cadet. All clothes, uniforms, etc., are kept in a common wardrobe on a floor to which no cadet has access. There is a staff of tailors, valets, menders, etc., who do nothing but attend to the cadets' kit, and the valets lay out the "rig of the day" in the dormitories as requisite. Washing goes out.

Each cadet has his own washbasin in a common lavatory; baths (shower only) are in the basement and are available on alternate days.

The complementary course is treated in much the same way; but the officers, who are all in one huge dormitory, have one chest of drawers to every five officers and are allowed wooden instead of iron bedsteads.

There are cells for refractory cadets, and the commanding officer has power to award up to 15 days in a cell for such offenses as insolence or idleness.

A very complete hospital with two medical officers is installed in the palace, and the cadets use the royal chapel on Sundays.

Leave is given for Casorta twice a week, but cadets rarely avail themselves of it. They can go to Naples occasionally. There is, however, very little time for recreation, and it is believed that the cadets are likely to suffer from too much cramming and too little scope for initiative and from absolute lack of privacy. The new dormitory building at Naples may be equipped with separate rooms for each cadet, but this is not certain.

Workshop accommodation, provisional but quite good.

The academy has its own printing and lithographer's shop and produces all its own publications.

FLYING TRAINING

The proximity of Capua with its good airdrome makes it possible for flying training to be carried out whilst the cadets are actually at the academy. There are two distinct courses, viz, the observers' course and the pilots' course.

The observers' course is carried out at Centoeelle, Rome, during the summer periods and is completed at the end of the second year at the academy. The total amount of flying during this course is 30 hours. After the course, cadets who qualify receive observers' pay.

The pilots' course is spread over the whole three years at Capua, and a special course and school have been formed there for the purpose.

During the three years each cadet will, on an average, have about 50 hours flying and will qualify as an airplane pilot (first brevet).

The military pilot's certificate (second brevet) is obtained by the cadets after the end of the third year's course. A complete field has been organized at Aviano, northern Italy, with different types of military planes. Cadets take a 20 hours' flying course on military planes, after which they obtain their final brevet, are promoted to second lieutenants, and are assigned to the squadrons for duty.

There are at Capua about 12 Breda school machines for primary training. They are side-by-side control and have a quick release device to enable the instructor to cut out the pupil's controls in an emergency. The engine is a water-cooled straight six cylinder.

The system of flying training is the same as that adopted in the civil schools, viz, a few hours' rolling practice on a pengain; 8 hours' dual instruction on the elementary type; 12–15 hours' solo on the same type; elementary acrobatics.

The pupil will then pass on the advanced type of machine, no examples of which are yet in the school. This is a multipurposes machine. The cellule can be moved forward or aft with respect to fuselage so as to change characteristics of the ship from a two-seater to a single-seater fighter. The change is effected by simply unbolting the wings and rebolting them to a second set of sockets in the fuselage.

Both machines are made in such a manner as to be very easily repaired by simple replacement of spare parts, a stock of which is kept at the school.

The pupils do not fly any type of military planes whilst they remain at the academy.

RECRUITING

It is understood that the applications for the fifth class, which joins in October, 1927, numbered 250, of whom only 50 would be taken. This is twice the number that applied for the fourth course, eloquent testimony to the efficiency of the propaganda which has been greatly developed in recent months.

THE SUMMER PERIOD

The summer period is utilized for the following purposes:

An instructional cruise with the cadets of the naval academy.

Visits to airplane and seaplane bases and stations.

Visit to aircraft factories, Government and private.

Visit to important towns, battle fields, and frontiers.

The observers' course at Centoeelle, for second-year cadets.

Intensive courses for cadets admitted direct to second or third year courses.

The French and Yugoslav frontiers are each taken separately, and cadets spend a fortnight on each, being taken from place to place by motor bus and conducted on foot to all the important tactical points. This involves a considerable amount of real climbing, most of which is done in September, when the tourist climbing season is already over.

4. Speech upon the introduction of the aviation budget.

The following speech was made by His Excellency Balbo, Undersecretary of State for Aviation, in presenting the aviation budget to the Senate. The budget was passed without other comment.

Without doubt, one of the central problems is recruiting. Not because of the ordinary difficulties found in recruiting itself, but especially because recruiting for aviation is based on the physical and psychical qualities of those who dedicate their lives to this new form of human activity.

During the fiscal year 1926–27 many extra training courses were advertised—

One for 200 ground student-sergeants for the purpose of forming a reserve of senior noncommissioned officers for the various ground activities.

One for 400 pilot-sergeants for whom the examinations were made not too difficult in order to open the way to many young men who would otherwise be eligible for aviation.

One for 100 pilot officers of the reserve (army) to fill urgent needs.

One for 100 student-officer pilots from the reserves, called from civil life (not from the army or the navy). I have found this a most convenient system and it will be followed hereafter under normal conditions.

One for 30 commissary lieutenants.

One to systematize the aeronautic status of army and navy officers in service with the air forces.

The above personnel will complete the layout actually under way, but it is not sufficient for the formation of a mobilization program. Aeronautics with us as a separate arm is only four years old, and in this short time it has not, therefore, been possible to draw sufficient elements from the reserve to form a separate aeronautic reserve force.

At the time of its organization it absorbed the entire mass of officers who were then actually serving in aeronautic activities the entire personnel afloat and in the technical service and all classes of the reserve. But there still remained a large percentage of reserve officers who, for some reason or other, had given up the service. Even should all of these be called back, it would still be necessary to instruct and hold as reserve forces a considerable number of trained personnel for use in the technical activities which would, in case of mobilization, pass under the control of the State. Of particular importance is the creation of an aeronautical reserve for use in the manufacturing, buying, and furnishing services.

THE SCHOOLS

If, at the aeronautic academy, our future officer corps is to be formed and instructed, I find that it will be necessary to institute a higher college for air warfare for the development of the finer critical sense, perfected ability, and capacity to command air masses, and where the rules and regulations of aerial strategy and tactics may be determined, which the intense but all too restricted experience in the last war was unable to develop.

The Ministry of Aeronautics will have charge of the schools for pilots, the schools for specialists, and the higher instructions for engineers. The ministry, however, does not intend to confine its attention only to schools for turning out personnel for military aviation.

It has been ascertained that the brief enrollment term causes an excessive crowding of studies and instructions to the new recruits, so much so that certain grades reach the condition of useful service only just before the expiration of

their terms. I shall do my best to further in every possible way the initiative of certain industrial concerns toward specializing in aeronautical construction. This should be an excellent source for recruiting and should give us personnel who are technically prepared not with months but with years of experience.

But the ministry expects still another benefit from these schools—that is, to supply the aeronautical industries and civil aviation with technical personnel well prepared and fit.

AERIAL DEFENSE

Another problem of not uncommon importance is that of aerial defense. All of our cities are now more or less exposed to aerial attacks, and, shortly, this danger will increase due to the evolution in aerial construction and the inevitable betterment of the technical means of the attackers.

The chemical arm is beginning to assert itself not only as one of the means of warfare but as the principal agent for offensive warfare against industrial centers and large cities.

It must not be forgotten that during the last war the absolute rule "necessity knows no law" was often adopted and the principle was advanced that cruelty might be the cause of shortening the war, thus saving more human lives than a war fought out on the old principles of humanity. It might be that, by overcoming the old-style humanitarian prejudices, future wars may adopt this principle more or less. In the face of this real peril the defense of national territory becomes a serious question for consideration.

First of all it seems indispensable that pursuit aviation and antiaircraft artillery should be directly under one and the same command. It would seem that the passive defense obtained by mobilizing the cities and intelligent methods for protection against the destructive effects of toxic gases should be confided to other organizations.

It is clear that if the others are preparing for that kind of warfare we must find means to defend ourselves and use the same means; on this account I am following very closely the work of uniting the chemical service under one head, and I expect this service to furnish offensive as well as defensive means.

Whatever form this warfare may take, whether with gas or with bombs, the most important question is the location of the aeronautic construction plants now centered in northern Italy. It is obvious that these will be the points most exposed to air offensives and that the enemy's first action will be directed toward these in order to diminish our capacity for reaction. This is a problem of more than ordinary interest. It has already been given very serious consideration. The Ministry of Aeronautics has favored the development of aviation industries in central Italy and will help those already established by distributing some of its orders for new construction and repairs amongst them.

The ministry is also giving its attention to the organization of groups of technical help in central Italy as well as industrial schools for furnishing specialists in aeronautical construction.

THE AERONAUTICAL INDUSTRY

The Ministry for Aeronautics has also directed its attention to the problem of the complete nationalization of the aeronautic industry so that our country, in case it were completely isolated, would be able to provide its own defense.

This should be comparatively simple and could be resolved in the following manner:

Buy abroad everything that does not exist in Italy or can not be worked up at home or substituted.

Produce in Italy all materials that may be used as substitutes for anything we may lack here.

Encourage the production of materials and instruments which have heretofore been imported from abroad on account of the higher cost of such production here.

THE AIR FORCE

On account of the limited budget we are forced to diminish expenses in order to maintain and even increase our air forces.

It is well known that the system of building in series and continuing a constant determined output is the most profitable one for the industry and most adapted for reducing construction costs because in this way the manufacture of parts is greatly increased and the expense of assembling, study, and experience is thus distributed over a greater production output. It is very clear that if it were possible to produce the same airplane for a long term of years, such as the manufacture of the same rifle for 36 years, the cost of each plane would be very much smaller. But it is just as evident that it would not do to overcrowd the production with types that would be out of date in a short time. In a few years changes are made in airplane construction incomparably more drastic than are made in rifles or guns in several score years. It is therefore incumbent upon us to adjust our budgets with the natural evolution in construction.

I would base the necessity of the reduction in cost of machines on the three following reasons:

(*a*) Revaluation of the lira.

(*b*) The new régime which this ministry intends to follow; discontinue ordering small quantities of different makes at short intervals, thus obliging the factories to increase and diminish its working forces to the economical detriment of the workers themselves, and begin ordering one type in large quantities within a limited time necessitated by the needs of the service as previously determined by carefully prepared statistics.

It is not meant by this to close the way to progressive improvements in the fighting and flying characteristics of the machines, but it means only that once a type is definitely settled upon this class of machine will remain in service until another has been found to justify its substitution. This period of active use, as I see it, would run from four to five years and would justify the financial, supply, and training preparation for such a period.

While the units are going through their courses of instruction and training with the machines already distributed, the new types and the improved ones will undergo trials in the flying fields and experimental camps, where they will be tuned up in every detail and, at the same time, all preparations will be made for the designing and construction of the stock machines in series lots when necessity arises.

(*c*) It is not yet possible to construct a permanent type for air travel; we can at least standard ze the construction of many parts, viz: From the control to the transmission, wheels, rubber, cables, ropes, rudders, blocks, nails, and so on down to tacks.

I refer this argument to the technical constructors with the hope that they will try in every way to standardize construction—that is, make use wherever possible of that which the industry produces or may produce and not try to create, under a false idea of originality, all new parts, from the block to the nail, to conform with the new apparatus.

Making parts in standard series saves money for the State when new supplies are necessary, diminishes the expenses of the construction firms because it reduces storage charges to a minimum where they are not obliged to tie up large sums in extra stocks, makes it possible to obtain parts direct from the trade, and reduces effectively the prices of materials which it is no longer to make on special order.

NEW MATERIAL

Another point we wish to call the attention of constructors to is this: The line to be followed in the future for the creation of new models. In the first place, the machine should prove itself capable of rendering complete service for the purpose for which it is constructed. The actual development of the studies of aeronautic engineering has reached such a point that it is logical to expect that an airship will fly and fly well; speed and climbing are qualities indispensable, of which there should be no question. It is no longer a question of flying and climbing in the air: it is not enough that a machine reaches 18,000 feet in 10 or 15 minutes if one must immediately descend because the low temperature of the upper air zones overcomes the pilot or renders the machine gun useless. It will be necessary to stay up and fight there under the most advantageous conditions. It is not enough to increase speed when this prevents aiming the gun or defending oneself.

Extended visibility in all directions, commodity and security in armament, and precision in aiming are the qualities which we must create at all costs: also, I would add, even to the detriment of those too often superficially reputed to be essential. I would like to see the constructors kept in closer touch with the aviators, giving greater importance to the necessity of aerial tactics and strategy. I would like, in substance, that they for the first would submit their plans to the criticisms of those whose necessities inspired such modifications and new ideas.

MOTORS

A problem which stands near to the heart of the Duce and myself must be brought to your particular attention—the construction of a heavy-oil motor for aviation. I declare to you now, and must insist upon it, that the motor constructors take this matter up seriously.

Heavy-oil motors for aviation is no longer simply a wish or a project; it has already entered in the phase of practical construction and has solved several important problems.

CIVIL AVIATION

The speaker with particular care went into the question of the development of civil aviation in Italy and abroad.

From his exposition it is plain that Germany stands out for its general system and the functioning of its air lines. Two facts, however, must not be forgotten—first, Germany has dedicated to civil aviation all of her resources which, in consequence of the Versailles treaty, she was not permitted to employ in the development of military aviation; second, that Italian civil aviation started in 1926 while in Germany this activity is by many years our senior.

It is useless to repeat that the Ministry of Aeronautics lends great importance to the development of civil aviation. To the lines now in operation—Turin–Trieste, Genoa–Rome–Naples–Palermo, Vienna–Venezia–Rome–Trieste–Zara, Brindisi–Constantinople—we expect to add, just as soon as the budget margin will allow, Munich–Milano, and Milano–Brindisi, Roma–Terranova–Cagliari, Rome–Napoli–Brindisi, Brindisi–Vallona. The Brindisi–Tobruk will probably be extended to Alexandria, Egypt, if it is possible to obtain concessions for this landing.

These lines have already been planned and prepared and we are only waiting for the possibility to start the services.

Altogether these lines form an aerial system by which it is possible to fly from central Europe to Constantinople, toward the Orient and Alexandria.

EFFICIENCY OF THE LINES NOW ACTUALLY IN SERVICE

The speaker then brought to light the activity and efficiency of the lines now flying. It is well to note that the data showing 315,000 flown miles with 1,552 passengers and 33 tons of goods and baggage does not represent all "of one year" of service of all the lines, but only the sum total of the separate activities begun, in April, for the Turin–Trieste and Genova–Roma–Naples–Palermo, in August for the Venice–Vienna and Brindisi–Atene–Constantinople, and in October for the Trieste–Zara lines.

In order to make it possible for us to compare our figures with the annual showing of other nations we should at least double ours.

It is evident that if the service had started with the beginning of the year the number of flown miles would be over 650,000, comparing well with England's 530,000 and with Holland's 680,000 miles; still, however, a long ways off from Germany's 3,100,000 miles, for the reasons given above.

The results obtained by us, however, are of considerable interest when they are compared with the very special geographical and meteorological conditions of the peninsula.

Worthy of mention are the two characteristic lines which are special for Italy—one from Naples to Palermo on the open sea, which is active all through the winter, and one which crosses the Alps and the Appennines, the most difficult route in Europe.

It is very comforting to tell you that no flying accidents have been caused to passengers or goods.

COLONIAL AVIATION

During one of my recent inspection trips to the bases in the Aegean, to Tobruk, Bengasi, and Tripoli, I was able to form an exact idea of the methods by which our service is carried on at the distant stations; on the condition of flight material and upon the present necessities.

The most urgent of all is the substitution of the old war-time motors with new, modern motors which will give better guaranty of dependable service.

The air lines which connect up at Taranto, Leros, Tobruk, Bengasi, Tripoli, Augusta, and Elmas are a sufficient guaranty of our position in the Mediterranean where freedom of movement is indispensable for the well-being of our peninsula.

This freedom is secure to-day by virtue of the existing defenses. Leros is 9 hours and 40 minutes from Rome, Tobuk is 3 hours and 26 minutes from Bengasi, and Tripoli is 5 hours and 20 minutes from Bangasi and 6 hours from Rome. We may, therefore, look with a certain satisfaction upon our situation in the Mediterranean.

SIMPLIFYING THE ADMINISTRATIVE ARM

A certain degree of inconvenience was manifest in the past, consequent to administrative red tape, which obstructed the development of our constructive program.

The rapid evolution in aeronautic construction, the urgent necessity sometimes for changing units from one place to another to keep abreast with the sudden changing of the situation, call for more rapid administrative services, so that too much time will not be lost between the moment the decision is made and the possible time in which to carry out the plans.

Naturally, the Ministry of Aeronautics intends that in the new legislative dispositions, conceived to diminish the inconveniences heretofore manifested, the interests of the State's purse will be accurately safeguarded.

REORGANIZATION OF THE SERVICE

The experience of the last four years has shown that it will be necessary to rearrange the ministerial service. There will be three separate and distinct divisions—one for studies and planning, one for production, and one for supplies. Above these and entirely separate from them will be the "technical committee" at the orders of the ministry.

The Ministry of Aeronautics is without a building of its own, which is the cause of considerable delays and complications. Offices which should be in constant contact are often in separate buildings, and some of them are even in rented apartments at considerable financial loss to the Government.

I would judge that some time next year the ministry will have its own building, sufficient for all its necessities.

Reorganizing the service as mentioned above and combining the entire ministry under one roof, I believe the work will be better distributed, and we can then count on an organization which will give us quick and accurate service, which is naturally to be expected of aeronautics.

This, honorable senators, is a hurried summary of the work which we have done and which we propose to do. Hurried though my relation may be, you will not fail to understand its importance and its value. You will no doubt render yourselves equal to the grave problems which must be faced and to the intelligence, force, energy, and will power necessary to solve them.

High, alert, and way above the difficulties of the moment, against destiny which often seems invincible, there is the spirit of the flyer.

Every race renews itself in perennial youth, makes itself heard more than once in the course of history, with the knowledge that it must expand toward new horizons, attempt hitherto unknown paths, and, with sacrifice and self-reliance, establish new limits of dominion.

This race of navigators must and will become a race of airmen. The chief of government gave the first command; according to his will and under his guidance the youth of Italy has thrown itself into the fight, has flown all the heavens, and is getting ready for new triumphs.

B. MISCELLANEOUS

1. Italo-Yugoslav relations.

[Source: British information service]

In view of the alarmist statements appearing in the press of several countries, which have been the subject of questions in the House of Commons, we think it of interest to give the view held in Whitehall. The terms of the treaty of Tirana covering the Italo-Albanian understanding, which was signed on November 27 last, were not communicated to the British Government before publication. This being the case, it is incorrect to assume that Sir Austen Chamberlain was consulted or expressed to Signor Mussolini any opinion for or against the treaty. On the day before publication of the terms, Signor Mussolini informed the British Foreign Office that he had signed a treaty of nonaggression and arbitration with Albania comprising a guaranty of her independence, which would be registered with the League of Nations. This has now been done. Both the parties being sovereign States and members of the league, the British Government had nothing to do with its inception, negotiation, or terms.

The tension between the Italian and Yugoslav Governments resulting from the treaty has been the subject of friendly British efforts to allay suspicion and facilitate direct conversations between the two parties. Sir Austen Chamberlain stated: "I certainly should not advise in this or any other case that recourse should be had to league intervention before the parties have met and discussed their differences." As a result of communications from the Italian Government to the British, French, German, and other governments on March 19 in which attention was called to certain military preparations stated to be proceeding in Yugoslavia, it has been agreed among the powers concerned that it is unnecessary to conduct an inquiry into the past but that should fresh occasion arise representatives of Great Britain, France, and Germany will be available to carry out an immediate inquiry.

Sir Austen Chamberlain has stated further that His Majesty's Government has no other interest in the question than the preservation of peace and has no intention of taking sides in the controversy but trusts that the full and frank discussions between Rome and Belgrade will remove possible causes of friction.

As to the resolution of the ambassadors' conference of November, 1921, the signatory powers merely undertook that in the event of the league council having to intervene to restore at any time the integrity of Albania, their representatives would recommend that the Italian Government should be entrusted with the restoration

of her independence. The contingency contemplated has not yet arisen.

The implications of Socialist members in the House of Commons that both Italy and Yugoslavia were threatening the independence of Albania and that the Tirana treaty was in effect an amalgamation between Italy and Albania is repudiated by the British Foreign Office.

NOTE.—Albania and Russia constitute the two most pronounced danger spots in Europe at present. Albania, at the mouth of the Adriatic, occupies a strategic position much coveted by both Italy and Yugoslavia. It is essential that Albania remain neutral and free from the control of either of these nations. The situation has lately been so tense that it formed one of the chief subjects of the recent meeting of the council of the league.—Ed.

JAPAN

A. NAVAL

[Source: Japanese press]

1. Aircraft carrier "Akagi."

The Japanese Aircraft Carrier *Akagi*, just completed at Kure Naval Station, will leave Kure for Yokosuka. En route, experimental exercises in taking-off and landing will be held. After arrival at Yokosuka, Prince (Ensign) Takamatsu, who is a student of the ordnance school, and other members of the royal family, will inspect the ship.

Some time in June the *Akagi* will be attached, officially, to the combined fleet for maneuvers in Bungo Passage; then will be assigned to the "attacking fleet" in the grand maneuvers off Tokyo.

The grand maneuvers this year will extend over the sea area from the Kuriles (Chishima) Islands to the South Sea Islands, and will be the most extensive in history.

NOTE.—The "Akagi," originally laid down as a battle cruiser, is of 27,000 tons. One sister ship, the "Kago," is completing.—Ed.

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2. Two 10,000-ton cruisers laid down.

Two 10,000-ton cruisers were laid down recently; one at Yokosuka and the other at Kure. These ships are included in the replacement program.

NOTE.—Japan is laying down cruisers as fast as ways are vacated. She has six 10,000-ton craft under construction.—Ed.

3. Submarines completed.

Submarine *Ro–31*, which was under construction at the Kawasaki Dockyards, Kobe, was completed recently, and the following officers were ordered to her:

Lieut. Commander S. Yoshitomi, commanding.
Lieut. T. Oyama, ordered on board.
Ensign T. Iriye, ordered on board.
Lieut. (Eng.) M. Yamada, ordered on board.

The submarine *I–21*, mine layer, which was under construction at the Kawasaki Dockyards, Kobe, was completed recently, and the following officers were assigned to her:

Lieut. Commander S. Kobayashi, commanding.
Lieut. N. Taniguchi, torpedo officer.
Lieut. (Junior Grade) H. Nakagawa, ordered on board.
Lieut. Commander (Eng.) M. Abe, chief engineer.
Lieut. (Junior Grade) (Eng.) M. Saito, ordered on board.

NOTE—The "Ro–31" is of 770/1,000 tons and the "I–21" is of 1,000/1,400 tons. Japan now has 14 submarines under construction, varying from 700 to 2,000 tons.—Ed.

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4. Destroyer launching and completion.

Destroyer *No. 30*, which was under construction at the Ishikawajima dockyards, Tokyo, was completed recently.

Destroyer *No. 33*, under construction at the Uraga Dockyards, Uraga, has been launched.

NOTE.—Japan is now building or has authorized and appropriated for twenty-seven 1,800-ton destroyers.—Ed.

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5. Kawasaki Dockyard, Kobe.

The Kawasaki Dockyard, Kobe, is in financial difficulties coincident with the failure of the Fifteenth Bank, which was carrying Kawasaki loans to the extent of 100,000,000 yen ($50,000,000). It is reported in the press that the Nippon Yusen Kaisha Steamship Co. is considering withdrawing its order to the Kawasaki company for one of the 16,000-ton motor liners. This order was to have involved an initial payment of 2,000,000 yen, which is being withheld. The Kawasaki company was counting on this cash credit to carry them through the present crisis and the withdrawal of this order places them in a precarious condition.

The possible failure of the Kawasaki company will present a problem to the Navy Department as the *Kinukasa* (7,100 tons), *Ashigara* (10,000 tons), and the submarines, *Ro–31*, *I–4*, *I–21*, *I–22*, *I–23*, *I–24* are building at this yard.

As an urgent national defense measure the Minister of Finance has held a conference with representatives of the Mitsui interests, the result being that the company's airplane construction works and the steel-plate construction works probably will be taken over by the Sumitomo interests, and the shipbuilding plant probably will be taken over by the Mitsui interests.

NOTE.—Since the recent financial crisis the country has become partially stabilized, at least for the time being. It is not believed that the financial crisis will eventually affect the building program materially.—Ed.

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6. Special courses for enlisted men.

During November and December, 1926, the following enlisted men completed special courses of training:

Torpedoes (advanced):	
Chief petty officers	2
Petty officers, 1 c	13
Petty officers, 2 c	117
	132
Torpedoes (electrical):	
Petty officers, 1 c	20
Petty officers, 2 c	18
	38
Telegraphy (advanced):	
Petty officers 2 c	1
Seaman 1 c	40
	41
Telegraphy (ordinary):	
Seamen, 2 c	277
Engineering—Engineers (advanced):	
Petty officers, 1 c	1
Petty officers, 2 c	29
Leading stokers	19
	49
Engineering—Engineers (ordinary):	
Petty officers, 2 c	3
Leading stokers	122
Able stokers	110
	235
Engineering—Stokers (advanced):	
Chief petty officers	1
Petty officers, 1 c	18
Petty officers, 2 c	29
Leading stokers	8
	56
Engineering—Stokers (ordinary):	
Stoker petty officers, 2 c	6
Leading stokers	87
Able stokers	47
	140
Electricity (advanced):	
Petty officers, 1 c	2
Petty officers, 2 c	13
Leading stokers	24
	39
Electricity (ordinary):	
Petty officers, 2 c	2
Leading stokers	39
Able stokers	43
	84
Carpenters:	
Carpenters mates, 1c	5
Carpenters mates, 2 c	16
Leading carpenters	31
	52

Blacksmiths:	
Petty officers, 2 c	1
Leading stokers	17
Able stokers	6
Ordinary stokers	3
	27
Machinists:	
Leading stokers	2
Able stokers	12
Ordinary stokers	6
	20
Ordnance manufacture:	
Leading stokers	6
Able stokers	5
Ordinary stokers	5
	16
Assembly finished material:	
Leading stokers	7
Able stokers	12
Ordinary stokers	6
	25
Coppersmith:	
Petty officer, 2 c	1
Leading stokers	3
Able stokers	2
Ordinary stokers	2
	8
Sheet-metal workers:	
Leading stokers	5
Able stokers	4
Ordinary stokers	1
	10
Casting:	
Leading stokers	3
Able stokers	3
Ordinary stokers	3
	9
Gunnery:	
Petty officers, 2 c	3
Seamen, 1 c	179
Seamen, 2 c	161
	343
Seamanship:	
Petty officers, 1 c	3
Petty officers, 2 c	13
Seamen, 1 c	74
	90
Range finders:	
Petty officers, 2 c	13
Seamen, 1 c	52
	65
Submarine school:	
All ratings	240
Paymasters' school:	
All ratings	47

The period of training in these schools varies from 5 to 10 months, with annual classes. The total number of enlisted men receiving this training during 1926 was 2,043.

7. *Navy budget, fiscal year 1927–28.*

There follow extracts from the official appropriation act for the Japanese Navy, fiscal year 1927–28. This act was passed by the Diet in the closing days of the last session.

Totals of ordinary, extraordinary, and supplementary accounts are shown below:

	1927–28	1926–27
	Yen	*Yen*
Ordinary account	135, 978, 084	126, 672, 005
Extraordinary account	119, 448, 541	112, 356, 000
Supplementary accounts	980, 150	617, 855
Total	256, 406, 775	239, 645, 860

COMMENTS ON BUDGET

Personnel.—The first column below shows information furnished by the Japanese Navy Department as of September 1, 1926. It is noted from the following figures that the budget allows for a considerable increase:

	Sept. 1, 1926	Budget	Increase
Officers	4,834	6,057	1,223
Special and warrant officers	2,641	2,672	31
Petty officers and men	67,193	72,681	5,488

NOTE.—This provision in the budget for personnel does not necessarily mean that the increases shown will be effected. In fact, it would be impossible to add anything like 1,223 trained officers to the effective list.

Oil.—The budget allows for 290,000 tons of heavy oil for use of the Japanese Navy during the fiscal year.

Cruisers.—It is noted that the cost of construction of the *Myoko* class (10,000 tons), old program is 21,899,852 yen, and the cost of construction of a cruiser of 10,000 tons under the new program is 27,978,303 yen.

Noncapital ships.—The 90,000,000 yen shown under this heading includes the 1927–28 apportionment of the old program, the second year's apportionment of the four-destroyer program approved 1926–27, and the first year's apportionment of the "replacement program."

Removal of explosive factory.—The naval explosive factory at Takinogawa (suburb of Tokyo) will be moved to Maidzuru.

Construction of wireless station.—To be located at Soya, in the northern part of Hokkaido.

Alteration of ships.—The sum of 1,505,000 yen is allowed in the current year for modernization of the *Kirishima*. (The *Kirishima* is in reserve at Sasebo.) Under the same heading the sum of 983,485 yen is appropriated for the *Haruna*, this being the last apportionment for this ship under this heading. Work of modernizing the *Haruna* was started in the early part of 1924.

Grand maneuvers.—The sum of 5,000,000 yen is appropriated for this purpose.

Aviation.—The appropriations for aviation as given in this appropriation act total 21,598,612 yen itemized as follows:

	Yen
Additional allowances for aviation duty	447,344
For manufacture and purchase of armaments pertaining to aviation	10,347,967
For repair and alterations of armaments pertaining to aviation	4,812,154
For experiments of armaments pertaining to aviation	64,683
Equipment for aviation corps	1,019,735
Aviation research	147,000
Equipage, consumable supplies, and fuel for aviation corps	2,266,604

	Yen
Equipage, consumable supplies, and fuel for deck planes	439, 829
Equipage, consumable supplies, and fuel for airplane tenders and carriers	797, 737
Aviation accident gratuity	15, 000
Expenses for minor maneuvers, deck planes	1, 060
Addition to aviation factory, Yokosuka	430, 379
Construction in Yokosuka aviation station	160, 788
Technical research laboratory	648, 432

The total appropriations for aviation for the current year are as follows:

	Yen
(1) Maintenance of aviation corps	21, 600, 000
(2) Equipment of aviation corps	1, 020, 000
(3) Maintenance of deck planes (battleships and battle cruisers)	2, 060, 000
(4) Equipping new ships with airplanes	220, 000
(5) Maintenance of tenders and airplane carriers	4, 090, 000
(6) Aviation research	147, 000
Total	29, 137, 000

The discrepancy between the two above totals is accounted for by the fact that the Japanese naval budget is so drawn up that items of expenditures can not be identified except in the detailed estimates which do not appear in the appropriation act. The large total given above, namely, 29,137,000 yen, should be accepted as the officially stated aviation expenditures for the current fiscal year.

B. AERONAUTICAL

1. General Nobile.

A few days ago papers reported that there existed misunderstanding or unpleasant relations between the Italian General Nobile and officers at Kasumigaura, and attributed it to the fact that the *N–3* was not making flights oftener than she has so far.

There came a denial of the officers concerned, stating that the only reason for the *N–3* not making more flights was the fact that practice flights at Kasumigaura are not safe for the dirigible, due to continued flights of airplane training planes, and that the *N–3* would fly very early in the morning, before planes begin their flights, and at nights.

The "Asahi" states that General Nobile will leave Kasumigaura and depart immediately for home, while his original schedule was to remain until early in June. The report refers to the existence of unpleasant relations between General Nobile and the naval aviation authorities.

NOTE.—The "N–3" was built in Italy last year and sent to Japan for assembling. She is a sister ship of the "Norge" of the North Pole trip. General Nobile went to Japan to instruct the Japanese in operation of the craft.—Ed.

2. *Establishment of naval aviation station in Hokkaido.*

It is reported that the Japanese Navy Department has decided to establish a new naval air station at Akkeshi, Province of Kushiro, Hokkaido. This station will be provided with flying field, seaplane facilities, and supply depot.

Akkeshi was recently visited by planes from Kasumigaura and Oppama.

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3. *Seacoast flight.*

Japan seacoast flight.—Two F-5 planes.

May 1—7 a. m., left Oppama; 3.30 p. m., arrived Ominato.

May 2—7.10 a. m., left Ominato: 10.20 a. m., arrived Akkeshi.

May 2—1 p. m., left Akkeshi; arrived Ominato 4.30 p. m.

May 4—8 a. m., left Ominato for Nanao, run short of fuel and forced to land on Shinano River near city of Niigata at 1.20 p. m.

May 4—3.40 p. m., left Niigata; arrived Nanao 7 p. m.

May 5—7.10 a. m., left Nanao: one plane was forced to land at Tsuruga at 10 a. m.; the other succeeded in reaching Maidzuru at 10.45 a. m; the second plane arrived at Maidzuru at 1 p. m.

May 6—11 a. m., left Maidzuru; 3.15 p. m., arrived Oppama.

Total distance covered, 1,538 miles.

Kasumigaura-Kurile flight.—Two Hiro reconnaissance type 14 planes.

April 29—8.05 a. m., left Kasumigaura; 1.20 p. m., arrived Ominato.

April 30—9.20 a. m., left Ominato; 12.15 p. m., arrived Akkeshi.

May 2—7.45 a. m., left Akkeshi; 10.05 a. m., arrived Toshimoye (Hitokappu Bay).

May 3—Left Toshimoye twice for Muroton (final destination), but each time was forced to return on account of weather conditions.

May 6—Gave up the flight to Muroton.

May 6—9 a. m., left Toshimoye for Ominato, but forced to return on account of weather conditions.

May 8—1 p. m., left Tosimoye; 4 p. m., arrived Akkeshi.

May 9—8 a. m., left Akkeshi; 11.30 a. m., arrived Ominato.

May 10—7 a. m., left Ominato but forced to return on account of weather conditions.

May 11—9.15 a. m., left Ominato and again forced to return on account of weather conditions.

May 12—7.40 a. m., left Ominato; arrived Kasumigaura 12.15 p. m.

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4. *Stoppage of manufacture of Salmson planes.*

The army arsenal at Nagoya has the license to manufacture the Salmson plane and the Salmson engine, and it has been the chief source of the army's supply of that plane and engine. The patent for the manufacture expires in July, 1927. As the Salmson company has received no application for the renewal of the license, it is inferred that this arsenal will cease the manufacture of this plane and engine in July, 1927.

It is known that this arsenal will begin the manufacture of the Dornier metal plane in the near future.

5. Visit to Tokorozawa Army air station.

This large field, 1¼ miles by ¾ mile, is located about 15 miles northwest of Tokyo and is the Army Pilot and Observer Training School. A few of the buildings are concrete and a few others steel and corrugated iron, but most of them are wood. There is ample hangar space and sufficient overhaul buildings, as well as school buildings.

There are 60 officers attached to the station, one-half of whom are instructor pilots. The average class is 24 students, either officers or noncommissioned officers. Five hundred civilians are employed who do all the upkeep and repair on planes, as no soldiers are used on this work.

Forty-five planes were observed in commission about equally divided between Hanriot primary, Salmson reconnaissance, and Nieuport 29–C pursuit training planes.

Student classes are formed three times a year. All students are instructed in primary, reconnaissance, and pursuit planes and a few of the very best selected for service pursuit squadrons. It was stated that the course comprises 60 hours' flying, but it is believed that 60 hours per type was meant. Students are given ground school instruction in meteorology, physics, instruments, radio, rigging, and engineering. All flying is done in the morning and ground school work is done in the afternoon.

It was stated that present planes are unsatisfactory and that the attempt is being made to obtain new types. A Curtiss PW–8 has been obtained and is in use here. Present types of planes are:

Hanriot—80 and 110 horsepower Le Rhone; training.
Salmson—230 horsepower Salmson; reconnaissance.
Nieuport 29–C—300 horsepower Hispano Suiza; fighting.
Farman—Two 400 horsepower Lorraine Dietrich; Bomber.

The influence of the old French mission is seen in the planes in use to-day. These are the same planes that the army has been using ever since the French left, and it is only recently that they have really awakened to the fact that they are far behind the times, and it is believed that great efforts will be made to obtain more modern planes.

In general, this is a well-organized school and students get good training considering the equipment used.

It is believed that the army is not nearly as far advanced in the art of aviation as is the navy. The army is more content to continue with the old methods rather than to search for new methods and equipment.

6. Visit to Aichi Clock Co., Nagoya.

Location: This factory is situated in the southeastern part of Nagoya about 15 minutes ride by motor car from the Nagoya railroad station.

Products manufactured:

Electric clocks.
Railway equipment.
Instruments.
Aircraft.
Pontoons for aircraft, wood and metal.
Propellers for aircraft.
Radiators for aircraft.

Personnel: Five hundred employees, all Japanese.

New construction: None.

Buildings:

Office, medium size, wood building. Small office building at gate.

Drafting room, small wood building behind office.

Assembly shop, large modern building used for building fuselages, wings, and pontoons.

Kiln, small building with suitable heaters for seasoning wood.

Heating plant, small brick structure for heating kiln and dope room.

Dope room, modern heaters and blowers, capacity 6 Hiro plane wings at one time.

Propeller shops, two small wood shops with glue room.

Storage sheds, several sheds used for storing lumber and miscellaneous gear.

Machine and woodworking shop, large modern building containing about 100 machine tools and 20 carpenter tools; machines crowded but well arranged; carpenter tools well arranged and equipped with ducts to carry away sawdust; metal shop in one end of machine shop, for brazing fittings where necessary; the machine shop is apparently used only for work on fittings.

Metal shop, small wood shop engaged in the manufacture of gasoline tanks and radiators.

Radiator shop, small shop evidently taking overflow work from metal shop.

Other buildings; in the adjacent area the following buildings were noted but were not entered as it was stated that they were used in the manufacture of instruments—

Very large machine shop.
Foundry.
Forge shop.

Buildings—Continued.

Two long, narrow buildings beyond machine shop which were noted when looking at aerial photograph.

Flying field: None. Landplanes are carted to field well out in the country for test.

Seaplane hangars: One, about 3 miles from the factory on the bay, where one out of five seaplanes is tested.

NOTES.—Two Avro 504–N type landplanes equipped with Lucifer 100-horsepower three-cylinder radial air-cooled engines and one Avro 504–O type twin float seaplane equipped with a 180-horsepower air-cooled Lyon engine were noted. It was stated that these planes were purchased outright by the company for test purposes and that they had not yet acquired the rights to manufacture. It is hoped to interest the navy in these types for use as training planes.

The appearance of work in general indicated that the factory is working on a fairly large order of Hiro planes.

Again it was stated that the pontoon design of the Hiro plane is unsatisfactory.

It was stated that last year metal pontoons for the Hansa seaplane had been made but that no more were being made.

It was noted that the gasoline tanks for the Hiro plane are made of sheet steel and are very heavy.

The only Japanese wood used in the manufacture of the planes here is that used in making ribs.

A considerable supply of wood is kept on hand at all times.

It is believed that this is an excellent factory and that excellent products are produced here.

NOTE.—See the June Bulletin for other reports on aircraft factories and air stations.—Ed.

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7. Nagoya aviation display.

Recently, an aerial circus was held over the army drill grounds at Nagoya, Japan, under the auspices of the Imperial Aviation Society (Teikoku Hiko Kyokai) with the assistance of the Departments of War, Navy, and Communications, civilian aircraft, and the newspapers of Nagoya.

The Imperial Aviation Society is a large group of men headed by retired army officers who have formed a society for the purpose of fostering civil aviation generally, and especially the training of civilian pilots. In the past the society has given a cash subsidy to civilian pilots holding licenses and from time to time give cash prizes for unusual civilian flying feats. The membership of the society is made up mostly of common people, since most of the

wealthy Japanese people belong and contribute money to the Defense Society. The late Mr. Densen, American, after a visit to Japan, contributed $200,000 to the Imperial Aviation Society.

The Nagoya air meet was carried out with the idea of stimulating public interest in Japan in aviation, especially the young men of an age suitable for training as civilian pilots. In conjunction with the meet an aerial exposition was held at one of the large department stores, where engines, plane parts, model planes, photographs, charts, and various equipment was on display. From the great number of people crowding their way in to see the exposition exhibits it is believed that considerable interest or curiosity was aroused.

It is estimated that 100,000 people actually came to the vicinity of the parade ground to view the air circus, and the greatest enthusiasm was shown by the people as the different events took place.

The following schedule of events was carried out with the greatest precision as to time:

(1) 6 a. m.: Attacking force of civilian planes flew over city and were supposed to deliver attack.

(2) 8 a. m.: (*a*) Navy sent up free balloon.

(*b*) Navy formation of three F–5's flew over parade ground and city and maneuvered according to directions sent by radio from the ground. Messages from telephones were received on the ground and sent out to the crowd over loud speakers. Planes flew in excellent formation, not very close, but kept perfect position.

(*c*) Navy torpedo and bombing plane spread a smoke screen. The smoke was made by using chemicals in the exhaust pipe. The screen was a good dense screen and lasted several minutes.

(3) 9 a. m.: Twenty civilian planes flew to attack the city and after a few minutes separated and some went to the outlying villages for the benefit of people there. Several remained over the parade ground stunting, while others landed to a mark, and one made parachute jump with an English chute secured to undercarriage. This jump was made very low, possibly at 400 feet. While one plane was stunting at low altitude over one of the villages, his plane collided with a tree and crashed. The pilot was seriously injured. The above attack was met by much firing of blanks from 75-mm. automatic guns and antiaircraft guns of about 3-inch bore.

(4) 10 a. m.: Army planes, 18 observation (Salmson) and 20 pursuit (Nieuport 29c), flew to the city to repel attack by civilian planes. These planes arrived in very good formation, one of the pursuit formations of five planes being excellent. After flying in formation for several minutes the planes scattered to the surrounding villages. Several pursuit planes remained over the field and gave a fairly good display of acrobatics. One of these pursuit planes made a forced landing on the parade ground with considerable skill, since the field was small and rough and entirely surrounded by thousands of people. One observation plane engaged in message dropping and in picking up messages from the ground. Another observation plane released pigeons, dropped small parachutes with dummies attached and dropped parachute flares.

(5) An Army Farman bomber flew over to bombard a miniature city which had been erected in the middle of the parade ground. The bomber believed

that the people were too close for safe bombing and after flying around for about 20 minutes returned to his field. While a civilian plane was being warmed up to take-off and drop a bomb, someone pressed the button setting off the mine in the village and it burned up forthwith to the great mortification of the officials.

(6) 9 p. m.: A night attack was made on the city by a civilian plane. The plane was located by three searchlights, army 30-inch, mounted on small hand trucks.

At noon a buffet luncheon was served at the Army Club for the officials of the society, local officials, airplane manufacturers, and senior army and navy officers. Several speeches were made, mostly asking for a larger and better Japanese air force. A formal dinner was given at 6.30 p. m. at the chamber of commerce by the Aichi Clock Co. and the Mitsubishi Internal Combustion Engine Co., both airplane manufacturers, for the officials of the society and a few army and navy officers. There were more speeches, the general substance being that though Japan is small in numbers of aircraft she must be mighty in skill.

Except for the nonappearance of the dirigible *N–3*, which had suffered some material damage on a recent flight, and the bombing of the village, the air display was a great success, and it is noteworthy that every event was carried out as scheduled and at the stated time with clockwork precision and regularity. Both civilian and military aviators handled their planes well, there was no confusion. An atmosphere of caution seemed to prevail; seaplanes kept within gliding distance of water and stunts were done at a safe altitude. There was very little of the spectacular done. In general, it is believed that it was a well-conducted show and increased the interest in aviation in Nagoya tremendously.

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8. Aeronautical notes.

a. FIRST SYSTEMATICALLY TRAINED CIVILIAN AIR MACHINISTS

Having decided to train machinists for aircraft work, the Department of Communications selected 10 candidates from among applicants who were graduates of middle and higher schools and sent them to the Tokyo Prefectural Industrial School. This was in March, 1925. Since that time these students have been given instructions at that school in the function of the aircraft and of the airplane motor. These students completed their course at the end of March, 1927, and are the first civilian machinists specially trained for aircraft service in Japan. They will be officially licensed as aeromechanicians and are expected to be employed by the different aviation companies and factories.

Ten other students will be selected shortly to pursue a similar two-year course. These students will be selected by examinations which are to be held lasting three days. Up to the present time 40 applicants have applied to take the examination, most of them being 19 or 20 years old and fresh from the middle schools.

b. AIR MAIL SERVICE POORLY PATRONIZED

The utilization by the public of the official air mail service is far from satisfactory to the Department of Communications. The following article which appeared in the April 16, 1927, edition of the Kokumin Shimbun (newspaper), Tokyo, indicates how poorly this service is utilized:

Almost two years have passed since the opening by the Department of Communications of its air mail service over the three routes: Tokyo–Osaka, Osaka–Fukuoka, and Osaka–Oita. It is, however, utilized by the public to a very limited extent only, probably because the people do not believe in the reliability of airplanes. In the last fiscal year the mail flights accomplished were 672 against the 915 flights scheduled, thus achieving the good result of about 73 per cent. On the other hand, however, the pieces of mail carried by air numbered only 5,559, a figure utterly disproportionate to the number of actual flights.

The Osaka Communication Bureau authorities are eagerly desirous of the utmost utilization by the public of the air mail service. According to them no special charges are required: all that one has to do is to write the word "Air" on the envelope. In case weather is so bad as to admit of no flight, the postal authorities take steps to have the mail sent quickly by rail, so that there is no fear of its reaching its destination later than the ordinary mail service.

c. NEW STUDENT GUNNERS

The Official Gazette of April 11, 1927, announces that 10 first and second lieutenants of the Army Air Service reported to the Akeno Army Aviation School as student gunners on April 1.

d. CRASH OF ARMY MACHINE

In the first day of practice in firing by officers from the Fourth Air Regiment (Tachiarai) at the Akeno Air School, to which school these officers had been sent to take a course of gunnery, a B–1 machine, piloted by Major Kinoshita, with Second Lieutenant Kojima as passenger, fell from a height of 600 feet and was demolished. The crash was due to engine trouble. The pilot was instantly killed and the passenger fatally injured.

e. "N–3" DIRIGIBLE

The *N–3* dirigible was formally launched at Kasumigaura on April 6. Various air trial flights were made from that date until April 28, when a trial flight was successfully made from Kasumi-

gaura to Tokyo, thence to Yokosuka and back to Kasumigaura. This flight completed the trial tests. Major General Nobile, who supervised the assembling of the ship, is reported in the local press as preparing to leave Japan on or about May 1.

f. VISIT OF DIVISION COMMANDERS TO AIR SCHOOL

A party of 17 division commanders who were in Tokyo for the annual conference of division commanders visited the army air school at Tokorozawa. They were accompanied by General Ugaki, the then Minister of War, and General Inouye, Chief of the Army Aviation Department. While at the school the party witnessed performances in stunt flying and formation flying by Nieuport and Salmson planes, as well as the employment of smoke screens by airplanes.

g. FLIGHTS

(1) *Round the Empire propaganda flight.*—The Kaibo Eikai (patriotic association for coast defense) has planned an "around the Empire" flight to consume two months.

The planes to be employed for the flight are two Kawanishi No. 8 seaplanes, each powered by a 260 horsepower Maybach engine. These planes were built for the association by the Japan Aviation Co. of Osaka.

Each plane will be piloted by a first-class civilian pilot and will carry a mechanic.

The itinerary planned is as follows:

First stage.—Osaka, Takamatsu, Kagoshima, Fukuoka, Oita, Mitajiri, Hiroshima, Uno, Osaka.

Second stage—From Osaka to Maizuru, thence round the coast of the Japan Sea, Hokkaido, and the Pacific coast of the Main Island via Aomori, Sendai, and Tokyo, touching at Shizuoka and Nagoya and around the island of Shikoku, thence to Osaka.

A total distance of 3,400 miles is planned to be covered in the two stages which will take nearly two months. At each stop one day's stay is to be made for the purpose of engaging in aviation propaganda by means of flying exhibitions, lectures and motion pictures.

(2) *Heijo to Tachikawa flight.*—In view of the supreme importance attached to the establishment of aerial communication between Korea and the main island of Japan, via the Tsushima Channel, the army aviation authorities have planned to practice a series of flights during the summer months under various weather conditions.

The first of these flights was made on April 16–18. Three planes from the Sixth Army Air Regiment at Heijo left Pingyang on April 16. Each plane carried a passenger beside the pilot. Fine weather and favorable air currents having been encountered, the plane reached

Tachikawa safely on the morning of April 18, although one of the three planes experienced engine trouble at Okayama and was forced to descend, repair the trouble, and then resume its flight, which resulted in this plane reaching Tachikawa several hours after the other two planes. The distance covered was 1,100 miles. These planes will return by air after a brief stay at Tachikawa.

Other flights planned in this series are a Tokorozawa-Pingyang flight by Tokorozawa planes, and a Seoul-Kagamigahara flight by planes from Seoul.

C. MISCELLANEOUS

1. Recent political and financial crisis.

The recent political and financial crisis in Japan has focused the attention of European nations on that country.

POLITICAL

Japan has rapidly evolved from a feudal and somewhat medieval organization to a modern State and it is not surprising that she has not yet attained political balance and that extreme parties are still struggling for power.

The Conservative Party, led by aristocratic military and civilian coteries, is known as the Seyu-Kai and was dominant almost continuously from 1868 to 1924. The imperialistic foreign policy of this party resulted in the war with China in 1895 and the annexation of Korea. After the Great War this party failed to understand that the new prosperity of Japan was due exclusively to the benefits derived from the war and that drastic readjustment became imperative. They indulged instead in inflation, overcapitalization of enterprise, high salaries, big dividends, etc., so that after the earthquake of September, 1923, they were overthrown and replaced by the Democratic Party known as Kensei-Kai.

The Kensei-Kai courageously tried to readjust the country's economic situation to postwar conditions, practicing deflation, and budgetary restriction, limiting credits and developing industry. They succeeded, apparently at least, as the yen regained its gold parity and the deficit in the trade balance was reduced.

The process of deflation produced failures, suffering, and discontent, and at the end of last year difficulties were increased by the troubles in China which reduced trade, besides a drop in the price and sales of silk. Failures, which had at first affected only firms of secondary importance, extended to such organizations as the Formosa Bank and the Suzuki consortium. The Privy Council seized this opportunity for upsetting the democratic Kensei-Kai ministry and bringing the Conservatives again into power. It now

remains to be seen how this party, which has by no means a majority in Parliament, will be able to govern, even with the support of the Privy Council.

FINANCIAL

It appears that the revalorization of the yen, which in 12 months advanced more than 20 per cent, has been too swift and that the prestige gained thereby has been one of the causes of the economic troubles leading to the downfall of the democratic government. This revalorization is not, however, the sole cause of the crisis, for the basis economic situation remains serious,

Japan is producing only a small quantity of the food and raw materials she needs. From India, Siam, and Indo-China she imports increasing quantities of rice; and coal, steel, and oil from various parts of the world. To pay for her imports she depends almost exclusively on her silk exports, but there is a growing danger to this industry in the rapid development in Europe and the United States of the artificial-silk industry. This has resulted in the prices for Japanese silk dropping from 2,000 yen to 1,400 yen a bale in a single year.

In spite of efforts to develop agriculture in Formosa and the production of raw materials in Korea and Sakhalin, it is to be feared that Japan will be confronted with great difficulties on account of her rapidly growing population. It must not be forgotten that the density of the population is already 487 per square kilometer, compared with 12.5 in lower California and 1.5 in Australia. Moreover, only one-third of the area of the Japanese islands is fertile, the rest being rocky, mountainous, or barren.

NETHERLANDS

A. AERONAUTICAL

1. Review of East Indian aviation activities.

Aviation in the Netherlands East Indies is strictly a military activity, the navy and army each having its own distinct aviation service supported by specific appropriation items in the annual budget.

It is true that both the army and navy planes have engaged to a very limited extent in Government civilian aviation operations, but these activities have been merely incidental to the development of the military aspects of the service. The navy department has made some move toward photographic mapping with the aid of airplanes, but so far no statement regarding the results achieved

have been made public. Also, the navy department recently assigned three flying boats to a trial flight from Surabaya, Java, to the free port of Sabang on the north coast of Sumatra, and return. This flight, so far as the navy was concerned, was undertaken for its military value, but the initiative in making the plans was taken by a Batavia society which has for its purpose the promotion of civilian aviation in this country. This society has been formed but a short time and its accomplishments so far are limited to the organizing of this flight with the cooperation of the navy.

Organization of Aviation in the Netherlands East Indies

There is no air ministry, nor is there any organization for the coordination of the military and naval aviation activities, and the needs of each branch of the service are considered separately. However, the governor general is commander in chief of both the military and the naval forces in this country, and as such he can order such joint action as may appear necessary or desirable. It can scarcely be doubted that the authorities have considered emergencies in which it might be necessary for the aviation forces of the two services to cooperate, but the plans which may have been evolved are not made public.

It is reported in the press that the States General in the Netherlands has, in its revision of the 1927 budget of the Netherlands East Indies, made provision for the creation in the department of Government Industries of "a bureau for the handling of matters relating to civilian aviation," but so far nothing further has been done, although the Government has already appointed a commission to study certain sections of the country, particularly Sumatra, with a view to determining what is required for the creation of a regular air service from Java to Sumatra. The investigations of this committee will be directed toward the needs connected with the use of landplanes rather than of seaplanes, and will be confined largely to the selection of suitable landing fields both for the regular stations and for emergency purposes.

Government Aviation Officials and Their Duties

DEPARTMENT OF WAR

(*a*) Commander of the flying service, who has general charge of the army aviation service.

(*b*) Observation school, in charge of the training of observation officers.

(*c*) Phototechnical service.

(*d*) Flying school.

(*e*) Transport service.

(*f*) Technical service. This section has charge of the maintenance of equipment and grounds. A very complete repair shop is maintained at the army flying field near Bandoeng.

(*g*) Radio and meteorological service. The development in this branch is not made public, but inasmuch as the war department has just set aside the sum of 50,000 florins ($20,100) for the erection of a new radio station at the main flying field of the army at Andir, near Bandoeng, it may be assumed that the development is not great, although it can not be doubted that considerable experimental work has been done.

NAVY DEPARTMENT

The headquarters of the navy department of the Netherlands East Indies are located in the Weltevreden section of Batavia, but the principal naval base, including the flying force, is at Surabaya. The organization is still incomplete so far as its division into sections is concerned. The whole service is in charge of Lieut. (first class) J. Oliver, who is stationed at the headquarters in Batavia, while the flying camp at Surabaya is under the command of Capt. Lieut. O. D. F. de Ridder. This officer assigns the officers under his command to duty according to his own judgment. The program of the navy of this country calls for the maintenance of a force of 108 seaplanes of all types, in such proportion as may be decided upon by the authorities, but the number actually in use is still considerably below that number.

The navy has recently received the six radio direction-finding instruments which were provided for in the 1926 budget, but no report as to any work done has been received as yet, and it is believed that they are still in the process of being installed.

Government Policy

Up to the present time the government of the Netherlands East Indies has developed no definite policy with reference to commercial aviation, for, although it has been favorable to aviation in principle, the reports of several committees which have been appointed to go into the question have been adverse to action by the government. These committees have held that, inasmuch as private lines would very probably not be self-supporting at the outset, they would require subsidies which the government does not feel disposed to grant until the finances of the country are in a more satisfactory condition. It is true that there has been a balanced budget for the past two years and that the revenues were considerably greater than had been anticipated, but it is felt that the margin of safety is still too narrow to permit of the investment of considerable sums in nonproductive enter-

prises. However, the pressure for at least an experimental line is becoming stronger, and some action may be expected not later than 1928 if not during 1927.

NOTE.—The Dutch Navy now has 32 modern planes in the East Indies and 18 more building. As with surface vessels, the main aeronautical strength of Holland is centered in the East Indies.—Ed.

B. MISCELLANEOUS

1. Geographic information affecting the strategy of the country.

Like Belgium, the Netherlands occupies a highly strategic position between larger powers intent on maintaining the integrity of a small State which no one of them would like to see absorbed by another. While Belgium's foreign policy favors France, Holland is economically, commercially, and politically more closely allied to Germany.

A possible source of future trouble is the Netherlands' control of the lower Scheldt River to the disadvantage of the Belgian port of Antwerp.

The land boundaries present no natural barriers. Reliance in defense is placed on flooding the country outside the "fortress of Holland" and holding that position.

With only 12,582 square miles of home territory, Holland is a mere spot on the map in comparison with her colonial possessions, whose total area (mostly in the Malay Archipelago of the East Indies) is 783,000 square miles. This gives Holland a great interest in the freedom of the seas and the security of distant colonies held by small powers. The plan for protection of these colonies (probably against Japan) by increasing her navy in those waters is hampered by the necessity for economy. She has recently, however, practically separated her colonial navy from her home navy and expects the Dutch East Indies to pay for the support of the colonial navy, which has been strengthened in cruisers, destroyers, and submarines. It is evident that Holland plans to protect to the fullest extent her interests in Asiatic waters.

CONCLUSIONS

The Netherlands is militarily backward and weak. Perhaps one cause of this is the defensive spirit engendered by the great reliance placed on the plan of flooding the country in case of war.

Due to the League of Nations, the Locarno agreements, and Germany's present lack of military preparation, Holland has lost her fear of invasion by that country in an attempt to secure control of the Rhine mouths. England is probably satisfied to leave their control with Holland, so that one of the past anxieties is for the present stilled.

The defense of the East Indian colonies is a prime factor in the foreign policy of the country and will probably cause Holland to work in unison with England.

NORWAY

A. NAVAL

1. General naval activities.

The proposal of the military committee of the Norwegian parliament for the reorganization of the army and navy has been finally accepted by Parliament. The necessary appropriation to cover the needs of the two branches of the service amounts to 40,000,000 kronen, a proposal to reduce this sum having been defeated. The personnel of the navy has been set at 1,900 men, with an added number of 200 for extra service. Five million kronen are to be used annually for new construction, a sum considered by naval experts to be much too small, as it does not permit replacement constructions to be begun in ample time. Light forces, submarines, and airplanes are to be built, and the two old coast ironclads will be subjected to a thorough overhaul in order to be able to keep them going for a longer time. It remains to be seen whether these elaborate plans can be put into execution in view of all the opposition. Nevertheless, and this is the essential point, everything will be done to bring the defense material up to the chosen standard, laying a firm, clear, foundation for a proper and consistent development of the material afloat and doing away with the continual plans for disarmament which have such a crippling and retarding effect on the proper development of the naval material.

At the beginning of April 290 men were called for the summer maneuvers; they will first be put through six weeks' training on the ironclads *Norge* and *Tordenskjoeld*. The first named vessel, with the King on board, left early in June for a visit to Finland, after which she will be placed out of commission. At the same time, the *Tordenskjoeld* will make the ordinary practice cruise with the naval cadets. The itinerary for this cruise has not yet been issued. The mother ship *Fram* and several mine layers are scheduled for six weeks' maneuvers in the outer Oslo Fjord early in July. The torpedo division, consisting of the mine layer *Froeja* as flagship, and the three torpedo boats *Trygg*, *Stegg*, and *Snoegg* will be put into commission the beginning of July for a period of three months. During this period this division will carry out general maneuvers with the ironclad *Tordenskjoeld*, submarines and airplanes after the close of the special submarine maneuvers.

POLAND

A. MILITARY

1. Geographic information affecting the strategy of the country.

The chief weakness of Poland is the absence of natural boundaries on all of its frontiers, with the exception of the Czechoslovakian frontier. No natural or artificial obstacles, other than the Karpathians on the south, exist. This lack of natural barriers, military agreements with France and Rumania, and a hostile Russia to the east force the maintenance of a large peace-time army.

The continued independence of Dantzig, the only practicable Polish port on the Baltic, the seizure of which in any war is essential to Polish success, is a source of extreme weakness and one that vitally affects the strategy of the country.

The Polish rail net for concentrating armies against Russia was much improved by the acquisition of the Vilna-Lida-Rowno re-aide line as a result of the Polish-Soviet agreement of 1920. This line, with the Vilna-Grodno-Brzesc-Litewski-Rowno double-track line, enables a speedy concentration either north or south of the Pripet marshes. The present distribution of Polish divisions takes advantage of this favorable situation of these and other double-track lines and protects such vital areas as Warsaw, Upper Silesia, and Galicia.

CONCLUSIONS

Poland has every appearance of being a military nation, yet a popular war could only be brought about by territorial encroachment on the part of Russia or Germany. Poland has no means either at home or abroad of financing a war. Reserve supplies are limited. The best arm is the cavalry, next the infantry, and last the artillery. Temperamentally, the Pole will fight well while winning; his staying qualities are questioned. The present army is built up on personality rather than service and ability, and the removal of Pilsudski would doubtless cause the frail structure to fall and thereby necessitate a complete readjustment of the official personnel. The army trembles under its heavy burden of politics. With no natural barriers, and an uncertain cabinet, Poland is in an unenviable military, economic, and political position. When the present Government gives more assurance of stability and financial conditions justify, efforts will doubtless be renewed to place the army in a higher state of efficiency. A war to the east or to the west would of necessity be defensive and could be carried on only with the aid of a liberal ally.

B. MISCELLANEOUS

1. The Polish situation.

The Polish situation has improved from every standpoint—political, financial, and economic.

Political: The compromise reached with Germany at Geneva has considerably strengthened the position of Poland and will pave the way toward a settlement of the more acute divergencies, such as the status of minorities, the schools question, etc. It will also postpone the Danzig and Silesian problems and restart the commercial negotiations, with a common desire for agreement.

Poland's attitude at Geneva has been much appreciated, with the result that England has modified her policy and agrees with France that Poland offers a bulwark against Bolshevism. The allied attitude and the better feeling between Germany and Poland have proved a real blow to the soviet government, and the menace of a Russian attack has therefore been considerably reduced.

Financial: A great improvement is noticeable as compared with the beginning of 1926.

The zloty is practically stabilized at the rate of 9 zloty to the dollar. The gold reserves of the national bank, which were practically nonexistent at the beginning of the year 1926, reached the equivalent of $20,000,000 at the end of the year, and the guaranty of the paper currency, which is at present 30 per cent, will be increased to 40 per cent.

The budget is more than balanced, and the foreign trade balance shows an excess of exports of more than $70,000,000.

The paper circulation amounts to about 1,000,000,000 zloty. This is below the country's trade requirements, and the Government will increase it gradually pari passu with the gold reserves of the national bank, the purchase of gold being rendered possible by the favorable trade balance which has created credits in foreign currencies.

The greatest financial difficulty was the high rate of discounts. A great improvement is now noticeable, as the actual discount rate on bills has been reduced from 30 to 15 per cent, the official rate having been reduced to 8½ per cent since March 11, with a tendency toward a further decrease.

Reviewing the year 1926, the British department of overseas trade states that the Bank of Poland, in conjunction with private joint-stock banks, continued to meet in full the demand for foreign currency, so that no difficulties were experienced in obtaining cover for payments abroad. Money was more abundant, discount easier and cheaper, and loans for industrial purposes were obtainable with less difficulty.

We understand that certain German banks are now prepared to discount three months' zloty bills, which seems to indicate that German finance does not fear depreciation of Polish exchange in the near future. Business on a credit basis both with foreign countries and with the Government and municipalities is more general. The position of the banks which withstood the crisis early last year was better at the end of the year than at any time, but a number of banks have gone into liquidation because they could not increase their capital to the required minimum of 1,000,000 zloty. Other banks are expected to close down in the course of this year.

State finance showed improvement over previous years, the revenue exceeding expenditure by 54,000,000 zloty. For the first time the balance of payments was favorable last year, as the surplus in foreign currencies derived from foreign trade was sufficient for the service of loans and other payments abroad.

Economic: In reviewing the improvement in the financial and economic situation in Poland, due regard must be had for the benefits derived from the British coal strike, which reacted favorably not only on the Polish coal industry but contributed to strengthen the financial situation and to revive trade; therefore, it would be unwise to assume that the improvement is necessarily of a lasting character.

The output of coal in 1926 amounted to 35,760,000 tons, as compared with 29,080,499 tons in the preceding year.

Oil production is on the increase, and the steel industry remains in a healthy condition.

Iron production has diminished, but it is probable that when Poland joins the European Cartel, as anticipated, the metallurgical industry will be strengthened.

Trade: The figures for Poland's import and export trade during 1926 show that the country has cut down her imports by half compared with 1925. In million gold zloty Poland's import and export trade was:

	1925	1926
Import	1,602.8	896.2
Export	1,272.0	1,306.0

The trade with Germany is still the most important, with 23.2 per cent of the whole imports as compared with 31.2 in 1925. The United States comes second in imports into Poland with 17.6 per cent, England, France, and Austria following. In exports from Poland, Germany comes first and Great Britain second. The United Kingdom and India together were responsible for 13.5 per cent of the imports and 17.3 per cent of the exports.

Poland's revival of trade in general was maintained, but the import trade still suffers from the licensing system, a policy which the Government intends to retain as a means of restricting imports.

NOTE.—The prestige of Poland abroad has recently increased considerably due to her strong and dignified attitude in the face of Russian provocation on the occasion of the assassination of the Russian ambassador to Poland. This attitude on the part of Poland was probably due to the fact that the Polish Government was well aware of interior conditions in Russia and that the soviet threats were pure bluff.—Ed.

RUSSIA

A. POLITICAL

1. Foreign relations.

[Source: M. I. D.]

Relations between Soviet Russia and Poland recently took a serious turn, and so grave a situation developed that the Foreign Minister of Poland, August Zaleski, entreated the powers gathered at Geneva to refrain from initiating any measures calculated to arouse Russian nationalistic sentiment to a danger point. That the powers recognized the urgency of the petition by abandoning the plan for concerted action against communism was indicative of the precariousness of conditions.

The prompt and sincere expression of regrets by the Polish Government immediately following the assassination in Poland of the soviet minister to Warsaw, Peter Voikoff, by a young Russian student, seemed to augur a serene and peaceful settlement of the unfortunate incident. Certain unhappy allegations of Poland's entire responsibility in the matter and of the concealed motivation of the assassination by Great Britain occurred in a series of notes emanating from the soviet foreign offices, it is true, but these were interpreted as designed primarily for home consumption.

The attitude of the Polish Government from the start has been one of conciliation. Nevertheless, no concessions incompatible with the dignity of Poland as a nation have been contemplated by the Poles. Soviet Russia has been informed that Poland can not refuse asylum rights to political refugees, and that the Polish Government can not accept responsibility for an incident, which, in view of the nationality of the principals, it considers a Russian domestic political affair unfortunately occurring on Polish territory.

Moscow, on the other hand, professes to believe the assassination of Voikoff to be but one of a series of antisoviet moves inspired by the animosity of Great Britain. The initiation by the British of the movement for concerted action of the powers in China, for example, is considered by the soviet to be responsible for the recent frustra-

tion of communist aims in that section of the world. The subsequent severance of relations by Great Britain, as a result of the disclosures of the raids in Peking and on Arcos House in London, aroused further feeling among the Russians, as another step in what the communists believe to be a plan by the British to isolate Soviet Russia in Europe. Most recently, the action of the Polish court in finding Voikoff's assassin guilty but giving him what the soviet considers a lenient sentence has created anything but a favorable impression in Soviet Russia, where passions have been inflamed by the recrudescence of the terroristic methods of early Bolshevistic days. The Moscow press declares that the sentence imposed upon Kowceda, young assassin of the soviet minister at Warsaw, is proof of the insincerity of Poland's assurances of good will toward the Soviet Union. The sentence, which was life imprisonment with a recommendation for commutation to 15 years, was also described as evidence of Great Britain's guiding hand in the conduct of Poland's political affairs.

Following the assassination in Warsaw, an unsigned ukase, issued on behalf of the Soviet Government, ordered the State political administration (O. G. P. U.—secret police) "to take decisive measures to defend the country against foreign spies, incendiaries, murderers, and their monarchist and white army assistants." The preamble of the decree attacks Great Britain most bitterly, making that country responsible for Voikoff's death and accusing her of organizing and subsidizing arson and terror and attempts on the lives of soviet statesmen. Furthermore, in contradiction to the recent policy of concealing terroristic attempts, it alleges that the lives of soviet leaders have been in the gravest danger recently.

Shortly after the publication of this decree, 20 men were secretly tried and shot at the O. G. P. U. headquarters. Thirteen were charged with counter-revolution, three with working for the British Secret Service, and four with alleged criminal relations with Sir Robert Hodgson or other members of the British mission. These last, who appear to have dealt openly with the British diplomats, were not arrested, for obvious reasons, until the last days of the mission's stay in Russia. The others seem to have been apprehended at various dates, some as long ago as a year.

The sentences passed upon the prisoners, practically all of whom were members of the old régime, are felt to be the answer by the soviet authorities to the recent revival of alleged counter-revolutionary activities, including the assassination of the soviet minister to Warsaw, the bombing of a communist meeting at Leningrad, and the wrecking of a trolley car enroute to Minsk, which resulted in the death of a Russian official who was escorting an alleged Polish spy.

The executions have caused consternation among former members of the Russian nobility and Czarist army officers still within the borders of the Union, and have brought forth widespread denunciation by the press abroad. Even Berlin newspapers, usually sympathetic toward the soviet, unanimously condemn the executions by the soviet as barbarous and brutal in the extreme, an action which can only help to strengthen the antisoviet front. According to German sources, the Soviet Government has with one stroke destroyed the moral prestige it gained from the Anglo-Russian conflict, the attack on the soviet embassy in Peking, the searching of soviet house in London, and the recent outrages against its officials.

For some time Germany has attempted to induce the soviet to revise their foreign policy. The German Foreign Minister, in conversations at Berlin, and later at Baden-Baden after the breaking of British-Russian relations, repeatedly made friendly suggestions to Tchitcherin, the Russian Foreign Minister, that continuation of communistic propaganda abroad was not only an insurmountable obstacle to the Soviet Union's foreign relations generally, but also decidedly inimical to Russo-German relations. He is quoted as saying it is to be deplored that Soviet Russia does unwise things which strengthen the hands of her enemies. Doctor Stresemann is credited with having sought to impress upon Tchitcherin the imperative necessity of disowning communist activities. Germany, as the only large nation on an amicable footing with Moscow, was requested by the powers assembled at Geneva to make friendly remonstrances regarding Moscow's conduct of late.

In addition, Sir Austen Chamberlain asked Doctor Stresemann for an official exchange of views concerning the passage of troops across Germany in case of a Russian attack upon Poland. Doctor Stresemann, himself unable to commit Germany to such a course, promised upon his return to Berlin to submit the question to President von Hindenburg.

Thus all of the powers of Europe are seen to be vitally interested in the development of the Russo-Polish situation—France, in a special sense, as the friend and ally of Poland; Germany, as the mediator of the present difficulty and the friend of Russia; Great Britain, in the checking of communist activity at home and in her colonies; and Poland, most of all, as the object upon which soviet anger may be vented because Great Britain is beyond reach. The stability of all Europe can not help but be affected if the present uneasiness continues to the danger point.

NOTE.—The key to the recent actions of Russia in the field of foreign relations is found in her internal affairs. These latter have been going from bad to worse in the process of the continual struggle of the Soviet to balance their communistic system in a capitalistic world. The soviet government knows

that it can count on the support of the Russian people only when purely Russian policies are threatened or when there is national danger. Hence, after being rebuffed in China, thrown out of England, and after failure to receive necessary credits from France, Germany, or the United States, the Bolsheviists start another war scare in the hope of uniting the mass of Russia behind them. This is an old story and an old game, however, and one of these times it is not going to work. All Europe knows that the soviet government can in no way sustain a major war.—Ed.

SWEDEN

A. NAVAL

1. Building program.

[Source: German Press]

Even though the new building program has not yet been accepted, nevertheless in spite of all the opposition in Parliament it can very safely be assumed that the law will be passed, through recognition of the great value of this program for the whole Kingdom. In many quarters, even those approving of the program in itself, there is much dissatisfaction with one point or another of the plan, all of which is more or less justified per se; however, this does not prevent an acknowledgment of the fact that the basic idea underlying this law is a sound one. It can be very clearly seen from the reports of the committee of experts that the law was founded on the idea of the preservation of neutrality and the repulsing of any hostile attacks. In a purely military sense it is quite correct to eliminate the capital ships of the great naval powers as potential opponents in estimating the most suitable type of ships for the navy, and also to turn down the cruiser type after it became clear that financial considerations made a compromise necessary. The question of the aircraft carrier can be better settled through actual practice than through theoretical discussions, the budget appropriation here again being insufficient for an aircraft carrier and a mine layer both. The main points of the program are as follows: A distinction must be drawn between the coast fleet and the local detachments. The coast fleet comprises the high seas forces while the local detachments (that is, detachments for coast defense) comprise the smaller or older ships detached from the coast fleet, which are still in a condition to be used. The coast fleet is to consist of:

(*a*) A division of four armored coast defense vessels of the *Sverige* class. The main characteristics of these ships will be as follows: Displacement, 7,650 tons; speed, 24 knots; armament, four 11-inch and six 5.9-inch guns, four 3-inch antiaircraft guns, no torpedo armament, heavier protective armor than the *Sverige* class; and oil burners. The cost of such a ship, including the armament, has been set at 27.3 million kronen.

(*b*) Two divisions of eight destroyers of the *Nordenskjoeld* class. Characteristics: Displacement, 947 tons; speed, 35 knots; armament, three 4.1-inch guns and four antiaircraft guns; and two triple torpedo tubes. Estimated cost, 6.94 million kronen.

(*c*) Two divisions of 8 patrol boats. Characteristics: Displacement, 200 tons; length 177.1 feet; speed, 27 knots; armament, two 3-inch guns, two machine guns. They are to be equipped for mine sweeping and laying. Estimated cost, 1.3 million kronen.

(*d*) Nine submarines, namely, three boats of an A type and six boats of a B type. The A type will resemble the submarines *Draken* and *Gripen* now under construction. Displacement 500/600 tons, speed 15/9 knots, 2,800 horsepower. Cost, 4.39 million kronen. The B boats will be equipped as mine layers. Estimated cost, 3.28 million kronen.

(*e*) An aircraft carrier. This ship will be equipped as an airplane cruiser and mine layer, carrying 12 planes which will take off from the deck by means of a catapult. Displacement 4,500 tons; length, 459.2 feet; beam, 66.9 feet; speed, 27 knots; armament, six 6-inch and four 3-inch guns, eight machine guns. Estimated cost, 16.5 million kronen. A later proposal gives the following figures: Displacement, 5,000 tons; speed, 29 knots; armament, eight 6-inch guns; eight airplanes; in other respects similar to the first proposal. A decision has not yet been reached.

The navy's motor torpedo boats will not be developed any further, and it remains to be seen whether a limited number of these boats will be used in the local detachments—that is, for coast defense.

The life of the various types of ships of the coast fleet has been established as follows: Coast defense vessel, 24 years; destroyer, 20 years; patrol boat, 16 years; submarine, 14 years; aircraft carrier, 30 years.

After the expiration of the above periods all the ships, with the exception of the aircraft carrier, can be used in the local detachments if their technical condition warrants such employment.

The following decision has been reached regarding the periods of construction and the distribution of expense:

First period, 1928–1933: 1 aircraft carrier, 2 destroyers, 4 patrol boats, 1 A submarine, 2 B submarines, costs, 46.63 million kronen, or 9.198 million kronen annually.

Second period, 1933–1938: One coast defense vessel (replacement for the armor-clad *Oskar II*, which will reach the age limit in 1932) (*Sverige* class in 1940), two destroyers, four B submarines; cost, 59.4 million kronen, or 11.88 million kronen annually.

This program represents an expenditure of 105.39 million kronen within a period of 10 years.

The destroyers *Wrangel* and *Wachtmeister* will be retained in the coast fleet (reach 20-year age limit in 1938).

There will be required 7.52 million kronen to finish up the old building program—that is, to 1928. However, in order to furnish full employment to the workmen at the Karlskrona yards up to that time preparatory work will be done on the first part of the new program in the period 1927–28—that is, work will be begun on the A submarines, the manufacture of the torpedoes, and the preparation of the working drawings. For this purpose 0.64 million kronen will be required; so that in this fiscal year 7.52 plus 0.64, or 8.16, million kronen will be necessary. As far as the personnel is concerned, it has been estimated that an added expenditure of 160,000 kronen annually will be necessary to provide the personnel for such a fleet.

The naval budget, which last year amounted to 44,198,002 kronen, this year amounts to 44,554,390 kronen, or 356,388 kronen increase. This includes 6,500,000 kronen for the maintenance of the ships and 195,000 kronen for the conversion of the old armor-clad *Dristigheten* into an aircraft carrier. The ventilating system on the armored vessel *Gustav V* will be improved and new searchlights and communicating systems will be installed. A range finder will be installed in the rear turret.

The coast fleet will be in commission from April 25 to May 18. Outside of the ships belonging to this group, there are other ships in commission for the training of cadets and sailors. The following forces will be in service during the summer: 4 coast defense armor-clads, 7 destroyers, 9 torpedo boats, 9 submarines, 9 guard boats, and 9 special ships. The torpedo boats and mine sweepers have been formed into a special detachment, a so-called pursuit flotilla, in order to carry out maneuvers as submarine chasers. The mine school has also been combined with the submarine and torpedo school in Karlskrona, which will insure better cooperation between the different schools while preserving at the same time the homogeneity of each school. Nothing is known of any foreign cruises outside of the visit of the two coast armor-clads *Manligheten* and *Tapperheten* in Rotterdam.

Rear Admiral Lybeck, former commander in chief of the navy, has been appointed to succeed Vice Admiral von Krusenstierna as chief of the admiralty. Rear Admiral Akerman has been appointed commander in chief of the navy, whose chief of staff is the former naval attaché in Berlin, Captain Lindstroem.

NOTE.—Since the above was written, the Riksdag has voted in favor of the Government's naval program for the replacement of vessels. In consequence, there will be built during the fiscal years 1927–1933, 1 airplane carrier, 3 submarines, 2 destroyers, and 4 patrol boats. During this period there will

also be drawn up plans for a cruiser. The Riksdag also agreed in principle to a 10-year naval program, although it neither voted any appropriations nor agreed to any schedule for expenditures for the last five years thereof. This comprehensive rejuvenation program has been under consideration for some time. It is the outgrowth of the recent report of the navy committee, which was published in the May Bulletin.—Ed.

TURKEY

A. AERONAUTICAL

1. Turkish military aviation—Historical.

During the war of independence (1920–1923) the Kemalist government acquired 10 Breguet planes in France and 24 Spads in Italy. At the end of the war this force was reduced to 8 machines and 10 pilots.

After the conclusion of the peace of Lausanne a large movement in favor of aeronautics began. The general staff pointed out that, lacking an adequate fleet, the defense of the vast territory and the very extended coast line could be accomplished only by a modern air force. Consequently, through the press, it started a wide propaganda in favor of aeronautics, while it studied the question of the proper organization of the new arm. Not only was aviation material lacking, but also the technical and flying personnel were lacking, and there were no schools for the education of this personnel. In order to elaborate the program a commission was named composed of a few Turkish officers who had specialized in aviation in various European schools. Thus was created the general inspection division of the air force, to determine the composition and scope of this force. In the meantime a fund of 2,000,000 Turkish lire was set aside.

In January, 1924, the propositions of the commission were carried out. The first orders for matériel were placed with French, Italian, and English factories, and a bill was submitted to the Grand National Assembly to obtain authority to send student pilots to foreign aviation schools.

The assembly did not want to concede such authorization and invited the commission to institute schools in Turkey, engaging for the purpose foreign aviators as instructors. Thus began the first school, that at Sevdikeuy (Smyrna) for airplanes, with a school for hydroplanes at Muya. The direction of the school was given to a Hungarian aviator, Proté, and three French aviators were taken on as instructors.

But the school could not give the desired results because the aviation matériel put at the disposition of the students was too antiquated, and unavoidable breakdowns could not be repaired on account of the lack of spare parts and proper machine shops. This

school, in fact, although attended by 50 students at Seydikeuy and by 4 at Muya did not issue at the end of the first year a single pilot's license.

In 1925 the propaganda increased and the population was requested to subscribe immediately in favor of an air force. It even came to the point that this subscription was given the character of obligatory taxes from which not even foreigners escaped, nor even officers, who were obliged to give one-half lira from their pay.

By this means the sum of about 1,000,000 Turkish lira (about $500,000) was obtained, and in order to administer this sum a commission was appointed, headed by Djevad Abbas Bey, aid de camp to Moustapha Kemal and deputy from Bolou.

This commission soon came into lively contact with the general staff. This latter were to decide on the disposition of funds, would itself choose the type of machines, and place the orders in Europe. The personal interests of influential people on the commission were felt. The general inspection division of aviation, on the other hand, did not intend to give up the powers which had been conferred upon it by law, and drew up a report addressed to the president of the council in order to justify itself.

In this, as in all other occasions where the military powers have found themselves in conflict with civilians, the former have the upper hand, and a decree on October 17, 1925, dissolved the commission for aviation and the business of propaganda in collection of funds was put under the league for aviation, which was constituted a few days later under the high patronage of the Ghazi, the special influence of Ismet Pasha, and the presidency of Fuad Bey, deputy from Rizeh. The league went to work at once, organized committees in every commune of the Republic (about 500), started new subscriptions patronized by these committees, and had a bill passed by the National Assembly which authorized it to organize a lottery for aviation on the model of that organized by the Young Turks for the development of the fleet. This lottery, which consists of 500,000 tickets at 15 lire, each one divided into 10 shares, will provide, when completed, a fund of 2,000,000 lire, unless it is reduced by graft.

It is believed that from all sources during the fiscal year 1926 the Government was able to dispose of about 3,000,000 Turkish lire for the development of aviation.

These funds permitted placing of orders for machines in France (Breguet, Caudron, Dewoitine), Germany (Junker, Rohrback), and also in Italy (Savoia hydroplanes). According to specifications the preference is for German matériel, and in particular for that metallic type which Turkish aviation authorities consider as best suited to their needs.

New provisions were taken to improve the personnel and to develop the schools, and financial provision was made to construct hangars and aviation fields.

The industrial attrition of the country, the scant technical education of the population, and the poverty of the budget do not allow, at least for the present, Turkish aviation to attain that grandiose efficiency which some of the Government officials in their speeches have been pleased to proclaim and make note of on numerous occasions.

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2. Aviation schools.

The precise rules for obtaining a pilot's or observer's license have not as yet been laid down. As soon as a pilot can fly alone he is assigned to a machine in the squadron. The foundation of four aviation schools is planned: (1) Smyrna, Sevdikeuy; this school has at present one section for hydroplanes at Daragol. (2) At Eski Chehir. (3) At San Stefano. (4) On the Lake of Sabandja (Ismid) for hydroplanes. When this school is ready the one at Daragol will cease functioning. Actually, the only schools functioning are those at Sevdikeuy, Daragol, and San Stefano. For the others the construction of hangars and other necessary buildings has not even been started.

School at Sevdikeuy: This is situated near the village of the same name, 12 kilometers from Smyrna, and a very short distance from Ghazimir, on the Aiden railway line. It is attended only by officers and at present there are 50 students.

Hydroplane flying school at Daragol: This is on the site of the camp of the French occupation force. At present there are only courses for aviation mechanics at this school.

Program of courses: The courses at Sevdikeuy comprise the following:

Pilotage.	Photography.
Aerial navigation.	Map reading.
Combat tactics.	Mechanics.
Bombardment.	Aircraft construction.
Radio.	Assembly of machines.

Turkish air force personnel on missions abroad: The Turkish Air Force recently sent 10 students (pilots) to the aviation schools of France; 4 officers and 6 noncommissioned officers to the Junkers factory, and soon 4 engineers will be sent to Paris to attend a school of aviation engineering.

Foreign instructors and specialists in service with Turkish aviation:

French—One captain and two lieutenants at the Sevdikeuy School.

German—One ex-captain and 10 mechanics from the Rohrback Co., at Eski Chehir; 5 mechanics from Junkers factory at Angora.

Hungary—One specialist for meteorology at Angora.

3. *Aviation personnel.*

Officers: The officers at present serving in aviation come from the line of the army and navy up to and including the rank of major and from the students of the military school at Pangalti and the naval school at Halki. In the future no more admissions of officers with the rank of major will be allowed because the higher ranks are already filled. The officers of the General Staff of Aviation coming from the army are not all aviators. Those who are not will be replaced little by little by officers of aviation who have been elected to attend the staff school. The pilots of the Turkish Air Force are all officers. The total number of flyers does not exceed 50.

Enlisted men: The air forces is made up of personnel as follows: 50 per cent from the army; 25 per cent from the navy; 25 per cent from the gendarmerie.

Enlistments are for two years but they are considering extending it to three years. In 1925 at the call to arms qualified elements were directly assigned to aviation. These elements are found to be greatly lacking.

Civilian personnel: The above-mentioned deficiency has made necessary the employment of numerous civilian personnel, particularly for the jobs of mechanics and machinists. This personnel is accepted for service in the air force, after signing a contract by which they agree to submit to military discipline in peace as in war.

Allowances: The flying personnel in the air force receive the following fixed monthly allowance over the amount of pay for their rank:

	Lire		Lire
Colonel	200	Captain	100
Lieutenant colonel	150	Lieutenant	84
Major	120	First lieutenant	75

(NOTE.—A lira is now equal to $0.51.)

Besides this, pilots, observers, and mechanics receive an indemnity of 20 piastres (10 cents) for every kilometer flown. Finally, all the officers of the air force, including flyers, receive an indemnity of 8 Turkish lire a month.

The enlisted personnel receives pay and allowances for their rank and branch augmented by 10 per cent. The civilian personnel is paid from $2\frac{1}{2}$ to 6 lire per day, according to the nature of the job.

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4. *Flight Matériel.*

The flight matériel includes old and very ill-assorted models. In order to itemize rationally the efficient flight matériel which is at present, or will be in the near future, at the disposition of Turkish aviation, it is necessary to distinguish the machines purchased in the years 1923 and 1924 from those which come from very recent orders.

(*a*) Efficient machines remaining from old purchases:
3 "Aviatic" with Fiat motors.
10 "Spads" 200 horsepower (pursuit).
4 "Farman" 300 horsepower.

These latter are what remain of the Farmans which were left as a gift at the departure of the French Army of Occupation at Constantinople in 1923.

4 De Haviland, motors 200 horsepower, speed, 110 m. p. h., 2-seaters.

These are what remain of the little aviation matériel left by the Greek Army in Anatolia.

2 Albatross, Benz motors, speed, 120 m. p. h., 2-seaters, 1 machine gun.
10 Morane Saulnier, Clairget motors.
12 Gaudron as follows—
7 of model C–27, Rhone motors.
5 of model C–59, Hispano motors.
10 Breguet, model 14, Renault motors, 2 seats, machine gun, endurance two and one-half hours, flight speed unknown.
4 Junkers 280 horsepower.
2 Savoia hydroplanes with 280-horsepower Fiat motors, one of these machines is located at Sevdikeuy.
2 Ghota hydroplanes.

Most of these machines are located at Sevdikeuy and Daragol and are used for flight instructions. They would be of little use for service in war.

(*b*) New machines of recent or imminent delivery:
50 280 horsepower Junkers bombing and scouting monoplanes, 2 seaters, 2 machine guns, carrying capacity 530 pounds, speed 130 m. p. h.
10, 450 horsepower Breguet, bombing and scouting planes.
12 Savoia hydroplanes, Lorraine motors, 450 horsepower.
2 Nieuports C–42 (pursuit), Delage motors.
2 Spad pursuit planes.
2 Rohrback pursuit planes.
2 De Woitine pursuit planes, Hispano motors, 500 horsepower.
2 Rohrback hydroplanes No. 3 (pursuit).

These machines are the only really efficient ones in the Turkish Air Force. They have not as yet been assigned to squadrons. Many of them are still crated and are on the discharging platforms of the stations at Eski Chehir and Sevdikeuy. The last 20 Junkers did not come up to the conditions of the contract.

(*c*) Planes for which orders may have been placed:
30 bombers.
34 pursuit.
6 hydroplanes (pursuit).

The model has not as yet been selected nor are the necessary funds available. Preference will be given to metallic planes of German construction.

URUGUAY

A. NAVAL

1. General statement.

The Uruguayan Navy does not, like most organizations of a like nature, have a separate minister. The navy is under the Minister of War and Navy. Under the minister there is a chief of staff, a general of the army who directly controls the army; while the navy has the director of the navy, who bears the same relation to the minister as the chief of staff. The director of the navy is appointed from one of the three captains on the active list.

One of the other captains holds the position of subdirector of the navy and the other captain of the port. The latter is in charge of all the sea and river ports of Uruguay.

The fleet consists of:

1 cruiser—*Montevideo* (1890, 2,050 tons).
2 gunboats—*Uruguay, Baron de Rio Branca.*
1 training ship—*18 de Julio.*
4 tenders—*Ingeniero, La Valleja, Oriental, Oyarvide.*

The total effective strength of the navy is 87 officers of the line and 25 officers of the auxiliary corps which includes the engineers and administrative divisions. There is a total of 1,031 sailors of all ratings.

YUGOSLAVIA

A. MILITARY

[Source: M. I. D.]

1. Strategic notes.

Yugoslavia is poorly situated as regards seacoasts. While she borders on the eastern Adriatic, still Italy's claim of special interest over the whole Adriatic Sea operates to limit Yugoslavia in her use of that sea. In the effort to get around this handicap, Yugoslavia has obtained special rights at Saloniki on the Agean Sea and in the railroad leading thence toward Belgrade. Greece wishes to keep these concessions as small as possible. Both the situation in the Adriatic and at Saloniki present possibilities for future trouble. In the meantime, Yugoslavia is in a weak position in moving her exports and imports. In the case of Saloniki, the hope is, at a favorable time and by arrangement with Bulgaria, to seize the present Grecian eastern panhandle now serving to keep these two Slav countries from the Agean Sea. This time may not come until Russia has sufficiently recovered her strength to counterbalance England.

The capital, Belgrade, and the railway to Saloniki are both near the eastern frontier and therefore in a weak position in case of an attack from the east.

CONCLUSIONS

The political situation in the Balkans is usually unstable and at no time more so than now.

As a member of the Little Entente with Rumania and Czechoslovakia, Yugoslavia is promised armed support in case of war with Bulgaria or Hungary. However, there are signs that the bonds joining the Little Entente are weakening.

But it is difficult to conceive of real teamwork between Italy and Yugoslavia.

It is probable that the policies of the future will be directed toward freedom from Italian domination, especially in the Adriatic, the securing of absolute control of Saloniki, and a community of interest with Russia.

To attain these ends, Yugoslavia has a powerful army, not very efficient in the higher scientific and technical methods of a modern army but possessed of great vitality and offensive spirit. It should prove an efficient tool and material aid in securing the leadership for Yugoslavia in the Balkans. Its deficiencies are lack of domestic industrial support to provide munitions and the financial inexperience and weakness of the country. The state also lacks political experience and leaders with a grasp of world politics. Thus what it may gain through its physical vitality and energy may be lost in treaties with more politically developed and sophisticated countries, such as Italy.

NOTE.—In regard to her external affairs, the world in general and Europe in particular is especially concerned with the relations of Yugoslavia vis-à-vis Italy. And the bone of contention between these two nations at present is Albania. Albania constitutes one of the danger spots of Europe at this time. See "Italy" in this "Bulletin" for further notes on this subject.—Ed.

SPECIAL ARTICLES

I. EUROPEAN CIVIL AVIATION

The largest item of expenditure in the German civil aviation budget of 1927 was for subsidies to aerial lines, amounting to nearly 20,000,000 marks (£1,000,000). It is now possible to compare the English figure under this heading, which amounts to only £137,000, plus £95,600 for the Cairo–Karachi route. Another large German appropriation is 2,000,000 marks for aerial competition prizes. The only thing comparable to this in the English budget is the small sub-

sidy of £16,400 to the British Light Aeroplane Club. In many respects the Germans are doing more in civil aviation than either France or England.

Most of the companies have reported considerable increases in traffic in 1926 and are preparing for still larger increases during 1927. The route mileage flown regularly last year in Europe exceeded 28,000 miles. In the course of the year Imperial Airways Limited (British) flew 778,980 miles (nearly 550 million h. p. miles) and their passenger and goods traffic reached record figures. The following figures show the 1926 achievements of the three countries:

(British) Imperial Airways (Ltd.), operating 9,904 miles of route, flew 778,980 miles:		
Passengers (actual)		16,775
Passenger (41½ per cent increase over 1925)	miles	3,746,000
Cargo	tons	679
Cargo (7½ per cent increase over 1925)	ton-miles	159,000
French companies, operating 6,290 miles of route, flew 3,243,900 miles:		
Passengers (by stages)		18,861
Passenger	miles	4,096,000
Cargo	tons	1,636½
Cargo	ton-miles	340,460
German combine—Deutsche Luft Hansa A. G., operating 12,765 miles of route, flew 3,816,000 miles:		
Passengers (actual)		56,260
Cargo	tons	929½

II. MARITIME COMMUNICATION REGULATIONS OF FOREIGN STATES

(The following is an extract from a letter received from the "Bureau International de l'Union Telegraphique" of Berne:)

We were requested by an office to ask certain administrations the following questions:

(*a*) In what manner they deliver telegrams which, by virtue of paragraph 5, Article XLVI, of the International Telegraphic Regulations, may be addressed to passengers on a ship which is calling at a port?

(*b*) How the public radio service is carried on between the coast stations of these administrations and ships in territorial waters?

(*c*) If they permit communication between coast stations and ships calling at a port?

In view of the fact that several offices have expressed a wish to know the answers which were received, we have decided to publish them, with the idea that they might be useful to a certain number of administrations.

GERMANY

Wireless service in German territorial waters between coast stations and ships is subject to the German wireless regulations, which, in general, are the same as those of the International Wireless Convention and of the Service Regulations appended thereto. Nevertheless, radiotelegraphy may not be used in ports, roadsteads, at the mouths of rivers, and on navigable internal waterways without the special authorization of the Ministry of Posts of the Kingdom.

Radiograms may not be sent to vessels which are at anchor in German ports, either by coast stations or any other radioelectric stations. Telegrams addressed to the passengers on a vessel which is in port must bear, besides the address of the addressee, the name of the ship and that of the locality in which the port is situated. (Example: Meier, first-class passenger, S. S. *Albert Ballin*, Cuxhaven.) Telegrams are delivered by messengers to the addressees on board ship, or sent to the shipowners or to their representatives in the locality in which the port is situated. The shipowners or their representatives will then arrange for the delivery of the telegrams to the addressees.

FRANCE

DELIVERY OF TELEGRAMS ADDRESSED TO PASSENGERS ON VESSELS CALLING AT A FRENCH PORT

Correspondence of this kind must be addressed in the same way as telegrams, which, conformably to the dispositions of paragraph 5, Article XLVI of the International Telegraphic Regulations, are delivered as far as possible before debarkation.

The telegrams in question are delivered on board if the ship is at the dock. If this is not the case the telegram is delivered on board if it bears one of the notices provided by Article LVIII of the regulations for the delivery of telegrams by special messenger; if not, it is delivered to the person who receives the correspondence addressed to passengers or to the ship's personnel.

On the other hand, according to a provision of the French regulations now in force, ships of all nationalities calling at French ports, or in French territorial waters, may not make use of radiotelegraphy either for transmission or reception, until they have obtained a permit from the French Government.

However, a new regulation on the use of wireless by vessels in French territorial waters and ports is at present being prepared.

GREAT BRITAIN

The manner in which wireless service is carried on between merchant ships in British territorial waters does not differ from that observed in communication with ships at sea. As regards ships arriving in the ports of Great Britain, radiograms addressed to persons on board are transmitted to them by coast stations up to the moment when these ships have actually docked, or arrive at the wharf.

In all ports and estuaries of the United Kingdom, except—

(*a*) In the military ports of Portsmouth, Plymouth, Chatham, Sheerness, and Rosyth.

(*b*) In the port of London, upstream from Cross Ness, merchant ships may use, without special permit, their wireless installations for transmitting urgent messages addressed by captains (masters) to owners, to agents or to dock officials, on the subject of the mooring or departure of ships and of arrangements for their cargoes.

Communication is subject to the following conditions:

1. Messages must not be exchanged except with the nearest coast station, and the ordinary rates are charged for these.

2. There must be no interference with other communications, and messages will be exchanged with the minimum power required for intercommunication.

3. All communication must cease immediately on the request of a government or commercial radio station.

4. The privilege of the intercommunication may be canceled at any time at the will of the Postmaster General.

Provided that they observe conditions 1, 2, and 3, vessels lying at the ports mentioned under (*a*) and (*b*) above may make use of their installations for the transmission of urgent correspondence relative to the service of the ship, when, in consequence of storm or for other reasons, they are unable to communicate with the coast by other means.

The wireless service has not been used for the delivery of telegrams addressed to persons on board vessels which have arrived in port.

As a general rule, telegrams destined for ships which have arrived in port are delivered, on land, to the agents of these ships, except in the following cases:

(*a*) When it is known that the ship has docked, or that it has come alongside the jetty or pier.

(*b*) When the cost of transportation by boat has been paid in advance by the sender.

ITALY

Vessels at anchor in Italian ports are forbidden to use their wireless apparatus, with the exceptions given in article 14 of the Royal Decree No. 1226, July 10, 1924, the tenor of which is as follows:

The licenses of radio-electric stations will submit their service time schedule for the approval of the ministry of communications; no change may be made in them without the previous consent of the department. The ministry may place certain restrictions on these time schedules when this is required for technical reasons or in the interest of the Government. As regards Government stations, the service time schedules will be determined by common agreement between the interested administrations.

Merchant and passenger ships are forbidden to use their wireless telegraphy or wireless telephony stations when they are anchored in territorial waters, or when about to start, except for the transmission of warnings or requests for assistance in case of distress, for communications of urgent necessity during the half hour following the arrival of the vessel, or finally for messages exchanged with land when all other means of communication is impossible owing to force majeure, or is prohibited by sanitary measures.

Whosoever shall fail to conform to this regulation shall be liable to the penalties provided by articles 18 and 19 of the Royal Decree of February 8, 1923, No. 1067.

The following rules are to be followed in the delivery of telegrams addressed to passengers on vessels calling at an Italian port:

If the sender has entered in the address the words "on board" or simply "board" before the name of the ship, the telegrams will be carried on board this ship by the messenger.

If this is not indicated, the telegram will be delivered—if possible—to the office of the ship's agents, on land.

Finally, if this last mode of delivery will mean a delay, the telegraph office receiving the message must arrange to send it on board, even by special messenger, at the expense of the addressee, if the ship has not docked or if she is outside of the zone of free delivery.

NETHERLANDS

In the waters of the Kingdom of the Netherlands (rivers, channels, harbors, etc.) it is not lawful for vessels to operate their wireless installations without the approval of the General Director of Posts and Telegraphs.

As a permit of this kind has never been granted, vessels calling at a Dutch port may not communicate with the Dutch coast station.

In consequence of this it is advised that messages sent to these ships should be received and addressed as ordinary telegrams and sent to the telegraph office of the port in question, provided that it is assumed that the telegrams will arrive in time, before the departure of the vessel. The telegrams will then be distributed according to the rules given in Article XLVI of the International Regulations.

If the contrary is the case—that is, if it is not probable that the message will be delivered before the departure of the ship, or if the sender has requested, for other reasons, that it be sent by wireless—the message will be dispatched to the coast station, which will then send it on as soon as it is able to communicate with the ship—that is, as soon as the latter is either in Dutch territorial waters or at sea.

Foreign ships in Dutch territorial waters may communicate with stations open to public correspondence, provided that they observe the rules laid down by the Minister of Hydrography. (See Journal Telegraphique, 1920, p. 29.)

The same facilities are granted under similar conditions to Dutch ships on request.

SWEDEN

Ships in the district of a Swedish port are not allowed to use their wireless installations. Consequently, they may not receive telegrams by wireless.

The general procedure followed in the delivery of telegrams addressed to a vessel which is calling at a Swedish port is as follows:

The telegraph office which receives a telegram of this kind will ascertain, if necessary, from the port authorities when the vessel in question is expected to arrive. If she has not yet arrived, the office by which the message has been sent will be notified of this fact. If, however, the vessel is expected to arrive shortly, a notice is sent to the port authorities, or, if the occasion arises, to the owner or agent of the vessel.

When, on the contrary, the ship has arrived and is at the dock, the telegram will be delivered by a mesesnger in the ordinary manner. If the addressee is not on board and does not belong to the personnel of the ship, a notice of nondelivery will be sent to the sending office. As a rule, telegrams are delivered to ships which are in the roadstead of a port and are not accessible through the owner or agent of the ship. In special cases the telegraph office employs a harbor boatman, when the addressee must submit to an extra charge for delivery.

A certain number of regulations on the employment of wireless apparatus in the territorial waters of other countries were published in the Journal Telegraphique. (Germany, 1910, p. 67; Austria, 1911, p. 141; Belgium, 1909, p. 172; Ceylon, 1916, pp. 60 and 69;

Denmark, 1907, p. 264, 1910, p. 68; Iceland, 1921, p. 11; Japan, 1920, p. 42; Lettonia, 1924, p. 53; Norway, 1922, p. 185; Portugal, 1909, p. 43; Russia, 1918, p. 29.)

The major part of the following data has been issued in official publications.

AUSTRALIA (FEDERATION)

Articles 63, 71, and 74, which follow, are taken from the Wireless Regulations, and paragraph (ii) figures in the permit issued to ship stations. These regulations and their appendices (various models of permits) will be published soon in the Journal Telegraphique.

63. When wireless communication is established between an Australian, British, or foreign vessel in territorial waters and a coast station, the rules in force for the operation of wireless telegraphy in the coast station shall be observed.

71. Wireless apparatus installed on board Australian, British, or foreign vessels, with the exception of vessels of war, shall not be either operated or used while these vessels are moored to an Australian dock, pier, or jetty, without the permission of the Minister or of persons authorized by him.

Nevertheless, vessels which are anchored or moored in conformance with the regulations or the quarantine act of 1908–1920, or with all regulations established by virtue of this act, may make use of radioelectric apparatus to communicate with a coast station, provided that there is no other electrical means of communication available.

74. (1) The employment of wireless apparatus installed on board of foreign warships staying at an Australian port is subject to such prohibitive or regulative measures as the Governor General shall see fit to institute.

(2) If at any moment a case of urgent necessity arises in which it is advisable for the government of the federation to control the transmission of all wireless correspondence, the Governor General, by means of a notice published in the Gazette, may prohibit, for a period of time which he deems necessary, the use of wireless telegraphy on board of foreign vessels sojourning in territorial waters.

(ii) The transmission and reception of messages by means of the licensed installation, between the said ship station and coast stations or other ship stations. On condition that the transmission and reception of messages originating from or intended for this ship station are subject, when the said station is in a port in the British Isles, to such conditions and restrictions as the Postmaster General may see fit to prescribe, and, when the station is in a port of the federation or a territory which is under the control of the federation, to the regulations established by virtue of the law concerning wireless telegraphy of 1905–1919.

BRITISH INDIA

The following articles are taken from the Wireless Regulations for 1921, which will soon be published in the Journal Telegraphique:

3. No person shall send a message of any kind whatsoever by the wireless apparatus on board of a vessel, other than a vessel of war, while the said vessel is in Indian territorial waters, if this correspondence can be sent by a government telegraph station.

4. Without the written authorization, general or special, of the telegraph authorities, no one shall operate or use a wireless apparatus installed on board of a vessel, other than a vessel of war, while the said ship is at an Indian port.

Nevertheless, a wireless instrument may be operated and used on board of ships navigating the Hooghly River downstream from Garden Reach, or the Rangoon River, for the sole purpose of exchanging radiograms with Calcutta radio or Rangoon radio, respectively.

In addition, foreign warships and the aircraft accompanying them shall observe the following regulations when they operate or use a wireless installation while the ship is in an Indian port:

(*a*) All transmission shall cease at the request, first, of the telegraph authorities; second, of any naval authority; third, of the port authorities; fourth, of any land station.

(*b*) All prolonged communication carried on by means of apparatus which does not send on purely continuous waves, shall be avoided.

(*c*) If a British warship is staying at the port, the British naval officer having the highest rank shall be consulted before the wireless apparatus may be operated or used.

5. During the time that a vessel of any kind is in Indian territorial waters no person shall operate or use a wireless installation on board of this ship in such a way as to interrupt or disturb a service communication or the transmission of messages between other wireless stations.

6. In cases in which wireless communication is established between any vessel in Indian territorial waters and a land station, the regulations contained in the manual entitled "General Regulations and Instructions of the Department on the use of Wireless Stations of India."

7. None of the present regulations shall apply within the limits of Indian territorial waters to the use of wireless telegraphy for the transmission or reception of distress signals.

JAPAN

The cost of carrying telegrams, addressed to vessels, by boat, is 0 f 75. If this sum is insufficient the charges shall be computed according to the current rates.

LITHUANIA

The laws and rules which govern the construction and operation of wireless stations in Lithuania are, briefly, as follows:

1. Wireless communication shall be under the ministry of roads and communications.

2. The Cabinet of Ministers shall issue permits for the construction of transmitting wireless stations.

3. The installation and service of wireless stations shall be superintended by the General Director of Posts, Telegraphs, and Telephones, in conformance with the regulations approved by the ministry of roads and communications.

4. Lithuanian mail steamers the personnel of which exceeds 30 persons, or which have a tonnage of more than 1,000 tons, shall be equipped with a wireless station.

Mail steamers which are in Lithuanian waters shall not operate their radio.

The "Direction General des Postes et des Telegraphes" of the Lithuanian Republic has adopted the word *Patelva* as telegraph address.

III. PRECEDENCE AMONG DIPLOMATIC OFFICERS OF FOREIGN POWERS

GREAT BRITAIN

(*a*) Naval, military, and air attachés at H. M. embassies and missions abroad, irrespective of their rank, have place and precedence next in succession after the diplomatic counsellor, but before the commercial counsellor, or, at posts where the staff does not include a diplomatic or a commercial counsellor, next in succession after diplomatic first secretaries, but before the commercial secretaries, first grade.

(*b*) Assistant naval, military, and air attachés at H. M. embassies or missions abroad, irrespective of their rank, have place and precedence next in succession after diplomatic secretaries, second grade, but before commercial secretaries, second grade, excepting at posts where such assistant attachés are the only resident naval, military, or air representatives, in which case their place and precedence will be governed by the provisions of paragraph (1) above as though they held substantive appointments.

JAPAN

In Japan there is an order of precedence of the imperial court for the Government officials and by which the precedence in embassies and legations is governed. This order denotes the order of the seniority of all Government officials. In following this order the rear admiral or the major general corresponds to the counsellor in embassies and legations, the captain or the colonel to the first secretary, and the commander or the lieutenant colonel to the second secretary; then the precedence between the above-mentioned corresponding ranks decides again by the date of the seniority.

ITALY

Order of precedence: Ambassador, counsellor, consul general, naval attaché and air attaché according to rank, first secretary of embassy, second secretary of embassy, third secretary of embassy, attaché to embassy, commercial attaché. In case there is no consul general, the consul (if consul de carrière) follows the military at-

taché; if he belongs to class 2, he follows the commercial attaché. New regulations are now being drawn up, and it is not yet known whether any changes will be made in the regulations as given above.

FRANCE

Naval and military attachés having rank of general officers (flag officers) have place and precedence after the diplomatic representative; however, they follow the chargé d'affaires (potential incumbent of the post) if the latter has the title of minister plenipotentiary and if he has greater seniority in his class than they in their grades.

Military and naval attachés having the rank of superior officers or subordinate officers hold second place after head of mission, first place being reserved for the chargé d'affaires. However, they rank with the latter if he only holds rank of chargé d'affaires in the absence of a secretary of the highest rank or grade in the list of officers of the mission.

Assistant military and naval attachés rank as follows: Colonel and captain, same rank as counsellor of embassy; lieutenant colonel and commander, same rank as diplomatic secretaries, first grade; major and lieutenant commander, same rank as diplomatic secretaries, second grade; lieutenant, same rank as diplomatic secretaries, third grade; lieutenants (j. g.) and ensigns, same rank as embassy attachés. In each grade precedence is determined by seniority of rank.

COMMENTS

The foregoing order of precedence between members of the diplomatic service and naval and military and air force attachés of the four principal powers has been obtained from the naval attachés of these powers in Berlin.

It will be seen that the procedure of Great Britain, Japan, Italy, and France is entirely different from that of the United States, that in these countries, naval and military attachés of the rank of captain and colonel take precedence after counsellors, or at least with first secretaries of embassies, in which case they rank in accordance with their dates of commission. In our service, captains and colonels take rank after first secretaries, which custom undoubtedly originated before the rank of counsellor was established in the diplomatic service. The result is that captains and colonels of over 50 years of age and over 30 years service are ranked behind secretaries of about 35 years of age and 15 years of service. Frequently these figures are still lower.

IV. THE MENACE OF COMMUNISM

Those apathetic Americans who persist in believing that there is no communist menace in America would do well to inform themselves upon the present social and military organization of communism in this country. By so doing, they would not only convince themselves that a communistic uprising is possible, but that it is more than probable, if heroic measures are not taken to suppress this movement before it is too late.

The plan upon which the work is being carried on is, first, the engineering of a general strike, which is to be developed into civil war and finally into revolution. To accomplish this they are fomenting strikes, stirring up industrial trouble, and creating dissatisfaction, the while they are secretly organizing and arming for the coming crisis. Of late they have been particularly active in seeking to break down the morale of our national defense, in which they are aided and abetted by the nation-wide pacifistic movement and in which they have enlisted the cooperation of some of the leading educational and religious forces of the Nation.

Before me is a book by the notorious William Z. Foster entitled "Syndicalism," from which I submit the following quotations. Under the caption "The general strike and the armed forces," he says:

> Once the general strike is in active operation, the greatest obstacle to its success will be the armed forces of capitalism—soldiers, police, detectives, etc. These formidable forces will be used energetically by the capitalists to break the general strike. We have given much study to the problem presented by these forces and have found the solution.

The plan which he evolves is to defeat the armed forces by disorganizing and demoralizing them.

To quote him further:

> A fruitful source of this disorganization will be the extreme difficulty the armed forces will experience in securing supplies and transportation. Modern armies to be effective must have immense arsenals, powder works, and industrial works behind them to furnish them their supplies of ammunition, arms, food, and clothing. They also must have the railroads constantly at their disposal for their transportation. When the general strike has halted these industries, the Army will be stricken with paralysis.

By this it will seem that the plan is to demoralize industry and transportation as an effective means for furthering the revolution. In addition to this it is the purpose of Communists so to engage the limited armed forces of the Nation in putting down strikes that they will not be able to combat the armed forces of communism.

Quoting him further, we have the following significant statements:

Another source of disorganization of capitalistic forces will be their division into minute detachments. The strikers, or revolutionists, being everywhere, will seize or destroy all capitalist property that they can lay their hands on. To protect this property the armed forces will have to be divided into a myriad of squads and scattered along the thousands of miles of railroads and around the many public buildings, bridges, factories, etc.

Quoting further:

The results will be that the armed forces will be minutely divided and through the loss of solidarity and discipline from whence they derive their strength, they will cease to be a fighting organization. They will degenerate into a mass of armed individuals scattered far and wide over the country. These individuals can be easily overwhelmed and disarmed, or, what is more likely, induced to join the ranks of their striking fellow workers. Once the disorganization of the armed forces is complete, the revolutionists will seize the unprotected industries and proceed to reorganize society.

If anyone still doubts the sinister and dangerous menace of communism, the following further quotation from the same booklet should dispel any sense of false security.

Syndicalists in every country are already actively preparing this disorganization of the forces by carrying on a double campaign amongst the workers. On the one hand, they are destroying their scaredness of capitalist property and encouraging them to seize this property wherever they have the opportunity. On the other hand, they are teaching working-class soldiers not to shoot their brothers and sisters who are in revolt, but, if need be, to shoot their own officers and to desert the army when the crucial moment arrives. This double propaganda of contempt for capitalist property "rights," and antimilitarism are inseparable from the propagation of the general strike.

The foregoing quotations are fair samples of almost unlimited quantities of literature which are in circulation in every city, village, and hamlet of our entire nation, and it is almost unbelievable that patriotic men and women can continue to regard communism as merely a joke, for, indeed, it is the most serious menace confronting the world to-day.

The present nation-wide, in fact world-wide, drive against the menace of radicalism is meeting almost unsurmountable difficulties, owing to the following facts:

As is well known, communism is well organized, abundantly financed, and in charge of thoroughly competent leaders. However, these considerations alone would not be unsurmountable.

The weakness of our movement to counteract this growing menace lies in the fact that the so-called capitalistic system depends almost exclusively for its success upon money. The capitalistic world has dealt in money so long and accomplished its objectives by means of money that it has come to regard money as all powerful, which is a very grave mistake as history so abundantly shows.

When the so-called capitalistic forces, which would be more properly called the patriotic and loyal forces of the nation, became aroused sufficiently to seek to thwart the sinister purposes of the communists, they immediately have recourse to a financial campaign, and, of course, finances are necessary, but they do not constitute the major line of defense. Expensive operatives are hired, detective agencies are called into play, high salaried secretaries are instructed, and the whole program proceeds on a monetary basis.

Contrast this to the methods used by the communists. They, of course, also have money, but it is not fair to say that money is the prime object nor motivating power of the great mass of their workers. It is, of course, true that the spiders in the center of the web who are manipulating all these various lines of activity are shrewd financiers, who hope in the general revolutionary movement not only to amass millions, but to occupy strategic positions in the governments of the world. But this fact is carefully hidden from the public, and they send out thousands, in fact, tens of thousands of workers whom they have enthused and inspired with their Utopian dreams, with their palaver about justice, with their sophistries of universal brotherhood and, above all, with their lying propaganda about the sins of capitalistic governments and our industrial system.

The fact that this is lying propaganda in no way detracts from its power to influence the public. Hence, communism has to-day an army of consecrated men and women who, regardless of compensation, are working night and day to put over their scheme of world revolution. The hirelings of the capitalistic system are no match for the devotion of these idealists. Perhaps it is a strain on terminology to term them idealists, as they had better be termed fanatics, but in all events they believe themselves to be idealists and as such are laboring.

This line of attack enables the enemies of Government to enlist in their army many of the very best men and women in the nation. They have clergymen, college professors, presidents of women's clubs, and hosts of others who in life are irreproachable, and hence their words carry weight and they have great influence with the public.

If the Communist movement were confined to the actual membership of the Communist Party in America, if indeed its activities were limited to the laboring classes, we would have but little to fear. It is this fact which escapes the notice of the ordinary detective agencies and renders so much of their work of but little practical value.

If a report shows that there are 100 members of the Communist Party in a given plant, it is comparatively easy to bring about their dismissal, but that has corrected nothing. They are still alive and

doubtless more earnest workers for their cause than they would have been had they been unmolested, while the real menace has been in no sense benefited by their dismissal from their jobs.

This does not in any way mean to imply that their detective work is without any value, as their reports must of necessity bring to the attention of the employer the presence of this growing menace and in so far it is of value. What I am trying to show is that it is not corrective but only informative.

The plans and methods of the leaders of radicalism throughout the world are clearly defined. In all probability there is no tremendous effort being made to augment the actual membership of the Communist Party, as their membership is now sufficiently large to accomplish all that they have in mind. Their present strategy is rather to instruct and train their members, the while they spread the gospel of pacifism, attack our national-defense system, and propagate their theories through the churches, schools, clubs, and particularly through labor unions.

Their well-formulated strategy includes boring-in processes to our Army and Navy Departments and a general breaking down of the morale of the defense forces. When the crucial moment arrives, they expect by strikes accompanied by violence to necessitate the dividing of our limited military forces into a large number of small groups where their presence will be needed to quell disturbances, giving their trained workers an opportunity to destroy bridges and tunnels as well as arsenals and thus break down the transportation system of the country. They believe that they can so disrupt transportation and communication as to render the Nation helpless before their reorganization process. A careful study of their plans would seem to make this very plausible and possible.

To meet this situation we must have in the first place an instructed public. There must be at least a small group of men and women in every city of our country who are informed as to the purposes and objectives of these military strategists and they must be ready for action in the time of crisis. But this is not all. Neither is it the most important phase of our plans. We must in some way instill into the hearts and minds of our people a new evaluation of the principles underlying our form of government and of the justice of our industrial system. We must also be able to enthuse a great army of industrial workers who in pulpit, platform, and school room shall industriously and continually set forth the great fundamental principles of free government, not for monetary reasons, but inspired by genuine love of country and devotion to its ideals.

Unless some method can be found whereby we can stir again the slumbering embers of patriotic devotion, unless we can again cause our loyal American citizens to thrill with patriotic love and fervor for the principles for which our forefathers gave their lives; in a word, unless we can raise the entire subject of patriotism from the present slough of indifference and lethargy—unless we can raise our campaign above the level of mere financial hirelings and place it upon a broad platform of devotion to God, to home, and to country—unless, I repeat, we can do these things, the present wave of Socialism-Communism, which is now sweeping the country, will continue to rise with increasing force until the long heralded day of revolution shall arrive, and with the present rate of progress, this is not such a remote date.

V. THE COUNCIL OF THE LEAGUE OF NATIONS

The Council of the League of Nations assembled at Geneva on June 13 for its forty-fifth session.

The council now consists of the following permanent members: The British Empire, France, Italy, Japan, and Germany, and the following nonpermanent members: Poland, Chile, and Rumania holding three-year seats; Colombia, Netherlands, and China holding two-year seats; and Salvador, Belguim, and Czechoslovakia holding one-year seats. Speaking in the language of American committee systems, the council is the steering committee of the league, for it prepares the program of the assembly and usually presents matters in such a way as practically to force the assembly to accept its conclusions. It has all the information on the problems of the league, and by virtue of its small membership frequently assembles to digest this material. By virtue of its large membership and short sessions the assembly will probably eventually become an approving or rejecting body of what the council proposes. The council might well be called the cabinet of the league.

The recent meeting of the council was called to order under the presidency of Sir Austen Chamberlain, the majority of the members present being the foreign ministers of their respective States. The agenda of the meeting comprised 34 questions, some of which were of relatively minor importance.

Sir Austen Chamberlain proposed at the first meeting of the session that the number of council meetings be reduced from four to three annually. Although in making this proposal Sir Austen affirmed that he would never consider making a proposal that might decrease the influence, authority, and activity of the league, the opinion of the majority of the members present seemed to be that

the proposed change would produce exactly those results. Geneva newspapers criticized the suggestion, declaring it cloaked a desire on the part of European statesmen to settle political problems outside of Geneva. Germany at once let it be known that she is against such reduction. Smaller states also sided with Germany, and it is expected that when the matter comes before the full assembly in September it will be definitely shelved.

The entrance of Germany made the league the center of the contemporary European political system. More and more the people of Europe are becoming accustomed to the idea that their statesmen must go to Geneva, which is becoming the political center of Europe, to reach agreements with those of other nations. So far as Europe is concerned, the Geneva body has become not the expression of any moral enthusiasm but the mechanism of a political experiment.

This meeting of the council focused attention upon the present European situation, which finds France and Germany struggling for leadership of the continental peace program, with Germany in the strategic position, holding the initiative in the operations. The meeting proved no exception to the rule already well established, that the secret conversations between statesmen present are of more importance than the meetings called by the league secretariat.

Arriving at Geneva, M. Briand found the line-up altered on account of the British break with the Soviet Government. Sir Austen Chamberlain, who had not originally favored a break between Great Britain and Russia, was, until the break came, in accord with M. Briand on the progressive policy to be carried out by the united powers, which were to issue warnings to Russia without a definite break. Sir Austen's failure to control the British cabinet caused him to look for support from Germany.

Doctor Stresemann affirmed that Germany's attitude toward the Soviet Government would continue to be that of perfect neutrality—no alliance, no understandings, but an attempt to "continue the policy of mutual confidence between the great powers initiated at Locarno, in the hope that such an attitude will be recognized and appreciated." Thus, Germany took the initiative, expecting, it was believed, to try by clever concessions to the British viewpoint to obtain Sir Austen Chamberlain's support as mediator with France, to secure further reduction of the Rhineland troops, and also an immediate adjustment of the Coblenz area. If France were obliged to make a new combination, she ran the risk of a severe diplomatic defeat. To refuse would mean bad relations with Germany and would also act as an obstacle to British policy. To accept would mean concessions to Germany under British pressure without benefit to France and for which Germany might not prove grateful.

On June 14 the German Foreign Minister, following his well-marked policy of attempting to secure concessions from the Allies whenever he attends a league meeting, surprised both France and Great Britain by suggesting a new bargain. This proposal was, that in case he refrained from pressing a demand for immediate evacuation of the Rhineland, Chamberlain and Briand should agree to give Germany a seat on the Commission of Colonial Mandates. In other words, in spite of the theory regarding mandates conceived at Versailles, that Germany has proved unable to lead uncivilized nations into paths of progress, she now considers herself sufficiently reformed to help the Allies administer the colonies which she formerly owned. Doctor Stresemann is said not to have stressed the point of a mandate for any particular territory but affirmed that Germany would be quite willing to sit with the commission as a whole to make helpful suggestions. Although Sir Austen Chamberlain desires to do something for Germany, he is said to have viewed this proposal with no great enthusiasm, while M. Briand declared that it is a big mistake for Germany to come to Geneva four times a year, always to "get something"; that Stresemann must realize as an "honorable and dignified member" of the council of the League of Nations that the proper spirit is one of reciprocity rather than of strict individual benefit.

Concerning the Yugoslav-Albanian situation, Mussolini laid down the law in a threat to withdraw his Foreign Minister from the meeting of the council if a question were raised in regard to anything but the latest specific trouble. He would not tolerate any debate, as suggested by the Yugoslavs, on the entire chapter of Albanian relations. In brief, Italy was quite willing to act as judge in the present dispute, but did not intend to be placed in the position of the accused. So, for the sake of harmony, every effort was made to shelve the entire matter.

Reports of June 16 stated that Sir Austen Chamberlain had failed utterly to line up the other great powers to break with Russia or to adopt any coercive policy toward the soviet.

Sir Austen had urged the powers to establish a sort of economic and financial blockade of Russia and combine their efforts to exert severe pressure on the Bolshevists. Germany might have been willing to discuss such a measure for a consideration, but her price was too high. Italy, mindful of her necessity for Russian wheat, declined to take such action against Russia, and Japan, confronted with the Chinese situation, refused. Belgium also decided against intrusion into the Anglo-soviet misunderstanding.

Accepting the report of M. Zaleski, of Poland, the council decided that a conference for the codification of international law will be called, probably by Holland, as it is believed that if the Netherlands summon the conference the United States and Russia may participate. The committee decided that seven major subjects are susceptible to regulation by international conventions: (1) Nationality; (2) territorial waters; (3) diplomatic privileges and immunity; (4) responsibility of states for damages done in their territory to the person or property of foreigners; (5) piracy; (6) procedure of international conferences; (7) exploitation of products of the sea.

The forty-fifth session of the council came to an end in an atmosphere of uneasiness, due to the unconcealed bitterness of the German delegation over their failure to obtain a definite reduction of the number of occupational troops in the Rhineland, and also to apprehensions over relations between Russia and Poland which vitally concern France as an ally of Poland. In connection with the Rhineland question, Marshal Foch is represented as opposing any reduction of the number of occupational troops until Germany has fulfilled the letter and the spirit of the military clauses of Versailles. Much anxiety was manifested by some of the powers to obtain a definite understanding on whether allied troops would be permitted to cross Germany in case Russia attacked Poland. Foreign Minister Stresemann, of Germany, and Sir Austen Chamberlain, of Great Britain, were unable to agree on Poland's desire to maintain a munitions depot in the Free City of Danzig. The matter went over to the next session.

At this meeting of the council it seems to have been fully demonstrated again that in a direct way the league can have practically nothing to do with issues between the great powers. The fact that prime ministers or foreign ministers actually go to Geneva and on occasion speak nominally as members of the council is wholly unimportant, because at all times they speak and act from a nationalistic viewpoint; moreover, neither the public nor members of the league, as such, are allowed to have the smallest official representation in important discussions which are always secret.

As long as France, Germany, Britain, and Italy are desirous of working together, are in agreement upon a line of policy with respect to Europe, and Russia does not force a major issue; as long as Europe retains its present desire, which despite unrest and panics is almost universally for peace and a better understanding, Geneva will continue to be the place where meetings can be held for the purpose of promoting international comity and good will. When

the great powers of Europe have arrived at a preliminary agreement as to what they are willing to do about any question at issue, the League of Nations provides the necessary machinery for a conference. The league has only begun its career as the meeting place of the Europe which desires cooperation. A future of very great, if relatively restricted, usefulness is opening. Increasingly, for years to come, Geneva is likely to be the center of European political exchange. The League of Nations can not control the peace of Europe nor the policies of the European countries, but while most of them are desirous of peace, it is the only instrument that is available to serve certain very definite European needs.

CONFIDENTIAL

OFFICE OF NAVAL INTELLIGENCE
NAVY DEPARTMENT
Washington, D. C.

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In general: Bureaus of the Navy Department; all force commanders; all commanding officers of capital ships, the larger patrols, destroyers, and submarines

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1927

FOR CONVENIENCE IN ROUTING

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Executive Officer			
Gunnery Officer			
Navigation Officer			
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Engineer Officer			
Asst. F. C. Officer			
Communication Officer			
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First Division Officer			
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Fourth Division Officer			
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Sixth Division Officer			
Marine Officer			
"V" Division Officer			
"A" Division Officer			
"B" Division Officer			
"E" Division Officer			
"M" Division Officer			
"N" Division Officer			
"R" Division Officer			
Radio Officer			

The material for the BULLETIN is largely derived from service sources and its interest and value are correspondingly dependent upon the number and character of the reports received by the Office of Naval Intelligence from our own officers. In this connection the observations of officers afloat are of great value, particularly if the reports rendered are drawn up in accordance with existing intelligence instructions.

While political and economic information is undoubtedly of much use, the collection of military information should come first in the intelligence work of cruising ships.

NOTICE

The contents of this number of the BULLETIN are based upon information received in the Office of Naval Intelligence between June 25 and July 25, inclusive.

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Confidential

O. N. I. MONTHLY INFORMATION BULLETIN

VOL. X AUGUST, 1927 No. 2

ARGENTINA

A. NAVAL.

1. New naval vessels.

According to the daily press, contract has been awarded for the construction of three torpedo boat destroyers to the Samuel White Co. of England for £1,000,000.

The vessels purchased for the Argentine Navy will have the following names:

The two leaders purchased in Spain, *Cervantes* and *Garay.*

Three destroyers to be constructed in England, *Mendoza*, *Santa Fe*, and *Salta.*

Two cruisers to be built in Italy, *25 de Mayo* and *Almirante Brown.* (The present *Almirante Brown* will be continued in service as a schoolship under the name *Los Pozos*, which is in commemoration of the famous naval battle won by *Almirante Brown.*)

Two hydrographic ships or "sloops" building in England, *San Juan* and *San Luis.*

Two tugs to be built in England, *Toba* and *Matoca*, which are of a similar type to the *Ona* class, at present in the Argentine Navy.

No contracts have been awarded yet for the submarines, and La Prensa of Buenos Aires has been publishing various articles calling upon the Minister of Marine to make the awards. La Prensa states that the Minister of Marine has informed them that the contracts will probably be awarded to French yards.

NOTE.—The above program was authorized by the Argentine legislature last fall. It has been commented upon in a number of Bulletins since the first of this year. It will be remembered that American interests were not even invited to participate in the bidding. The leaders purchased from Spain were the former "Churruca" and "Alcala Galiano" of 1,650 tons, completed in 1925.—Ed.

---

2. Discipline in the Argentine Navy.

The discipline in the Argentine Navy is good. The methods of discipline are carried out along the lines of discipline in the United

States Navy. There is one important exception, however, and that is the fact that the executive officer awards punishments and each division officer may award punishments for petty offenses, subject to the revision of the executive officer. The Argentine naval officer considers that this system works very well, in that it brings an increased respect from the enlisted men. The younger officers leave the training ship *Sarmiento* after a prolonged cruise, usually of one year, as midshipmen, where they are carefully observed by the older officers. In this way midshipmen obtain ideas of discipline and punishment which gives them the necessary experience for handling cases of petty offenses later as officers on their ships.

Promotion by selection is carried out generally with fairness, and it is presumed that the system brings with it contentment, efficiency, and good discipline. Every officer in the Argentine Navy, after leaving the naval academy, is subject to selection. As stated above, it generally operates with fairness. However, among the younger officers there is a tendency to use personal and political influence through relatives of the officers on the selection board. It has been known that young and efficient officers have been passed over for the advancement of others owing to the social contacts of the ones who obtain the desired promotion.

The Argentine Navy pays a great deal of attention to outward appearance of discipline, such as salutes, standing at attention, and appearance on liberty.

Discipline on board ship is due in a great measure to the type of enlisted men and conscripts. These men look toward the officer personnel as to a higher social order which their inherent obedience induces them to follow. Besides, the conscripts are very young, and, as they form the majority on all ships, are generally prepared to be obedient, and are seldom brought to justice.

---

3. *Visit of French Squadron to River Plate.*

A despatch from Paris states that a French naval squadron composed of the cruiser *Lamotte Piquet*, and the destroyer *Jaguar* will come to the River Plate.

The squadron will be in Montevideo toward the 20th of August, where it will remain a week to take part in the celebration of the Uruguayan national holiday, the 25th of August.

NOTE.—The frequency of recent French flag showing cruises has been commented upon before in the Bulletin. These have included the Near East, England, the Baltic, and Africa.—Ed.

4. Argentine Squadron to Visit Italy in 1927.

The Argentine battleship *Rivadavia* and the cruiser *Belgrano* and the new destroyers (purchased in Spain) *Churruca* and *Alcalá Galiano* will join the school ship *Presidente Sarmiento* on October 12, 1927 in Genoa, Italy, the occasion of the dedication of the General Belgrano statue in that city.

Three of the ships mentioned, the *Rivadavia*, *Belgrano*, and *Sarmiento* were named for former Presidents.

B. AERONAUTICAL

1. Naval Aviation Station.

The following is an extract from the report of the Minister of Marine, 1927:

> With the exception of the aeronaval station at Puerto Belgrano, which is constructed, the stations that this department proposes to build are none of them as yet ready for use.
>
> The naval air station at Punta Indio is partially completed, especially the barracks for officers and men and the hangars. This part of the construction is known as the first series, the second series, which includes workshops, storehouses, and additional barracks, will be completed this year.
>
> The construction of the naval air station at Mar del Plata will be started this year with the building of a hangar for the protection of the hydroplanes which take part in spotting practice at the annual long range target practice. A total of 2,300,000 Argentine paper pesos will be required to complete this work. Of this amount, 270,000 pesos have been made available this year by Congress.

C. POLITICAL

1. Latin American League.

There has been organized within the last few weeks in the city of Buenos Aires a league known as the Latin American League, as distinct from the Pan American Union and the League of Nations. The purpose of this league, as published in the Buenos Aires newspapers, is as follows:

(*a*) Strict neutrality of the Latin American people in conflicts which are between various nations.

(*b*) Not to participate in any other association or alliances with imperialistic powers.

(*c*) Retiring from the Pan American Union, withdrawal of financial assistance, looking to its final dissolution.

(*d*) Concerted support to brother nations whose sovereignty is being menaced by imperialism.

(*e*) Independence of Porto Rico, full sovereignty and territorial integrity of Cuba, Haiti, and San Domingo; suppression of the Platt

amendment in the Cuban constitution and the abrogation of the treaties similar to that of September, 1925, between Haiti and the United States, which institutes financial control and compromises the territorial integrity or limits in other forms. Independence of the Antilles.

(*f*) Total repudiation of the treaty of July, 1926, between Panama and the United States and of any other agreement which changes the actual situation of the Isthmus.

(*g*) Revision of the old treaties regarding the basis of integral sovereignty of Panama and of the nonoccupation by the United States of territory other than that of the Canal Zone.

(*h*) Reconstitution of the Court of Justice of Central America.

(*i*) Abrogation of the Bryan-Chamorro treaty and others of a similar nature.

(*j*) Absolute respect for the integrity and independence of Costa Rica, Nicaragua, El Salvador, and Honduras in case of the construction of an interoceanic canal.

(*k*) Union of the five republics into a federal state.

(*l*) Forbidding the transference to the United States by any European power of any of its possessions situated in the New World without the previous consideration and examination by our people.

(*m*) Unconditional reintegration of the Malvinas Islands (Falkland Islands) to Argentine sovereignty.

(*n*) Political organization of South America on the basis of a cordial and strict cooperation of Argentina, Brazil, and Chile with the ultimate conclusion of an alliance with all the neighboring countries. A similar alliance between Mexico, Central America, and the Antilles.

(*o*) Minor paragraphs take up the question of economics, customhouses, and money; the establishment of a continental court of justice; exclusively Latin American conference for the study of its political problems and the conclusion of general treaties of mutual guaranty between republics of Latin America and of regional agreements of nonaggression between neighboring countries and limitation of national armaments.

The president of this association is Dr. Manual Ugarte and among the Argentine representatives is the name of Arturo Orzábal Quintana, a gentleman who is rabid anti-American and of whom it has been said that a great deal of his financial assistance is coming from Russia through Spanish and Italian agents abroad.

NOTE.—Argentina is probably the leader of anti-American agitation in South America. It has been reported that this agitation is not discouraged by the British. The complete omission of the United States from any participation in the building program, now under way, is an example of the effect of this agitation.—Ed.

2. Foreign relations.

(A) STATUS OF RELATION WITH FOREIGN COUNTRIES

ARGENTINA AND SPAIN

The foreign relations of Argentina are governed principally by two things—racial ties and economic interests. With Spain the latter is of little importance; however, due to the former the relations of these two countries are very close. For example the participation in the exhibition now being prepared in Seville is perhaps the most elaborate and expensive that Argentina has ever made. The reasons for the very friendly feeling are clear; Spain is the mother country, the language being common to both nations, their literature is also common, and since Spain has the larger literary production its effect is tremendous in influencing public opinion.

ARGENTINA AND ITALY AND FRANCE

Italy's case is very much the same as that of Spain. The 2,000,000 Italians in Argentina, with an equal number of people of the same descent, make the racial ties very strong. The Italians through their "Institute de Cultura Italiana" have brought to this country prominent lecturers, many of whom are men of letters, of science, and former prime ministers.

France has a similar institution known as the Alliance Francaise which has endeavored to produce the same results, and in the past has brought out such men as Anatole France, Clemenceau, Briand, etc. The French population is rather small but quite energetic. In the subways, etc., may be seen such posters as "It is a patriotic duty to contribute to the development of Franco-American trade."

ARGENTINA AND ENGLAND

The leading factor in the economic influence of Argentine foreign policy is England. For many years England has invested capital in large quantities in railroads and in the animal industry. Some of these industries in times passed rendered very little return on the funds invested. This fact has been impressed very strongly on the Argentine mind and through clever propaganda England has brought herself in the happy position to have the Argentines believe that all her investments are for the benefit of Argentina in contributing to the development of the nation.

A question that has been pending between Argentina and England for some time, and to which this country has devoted a lot of thought and literature, is the English possession of the Islas Malvinas (the Falkland Islands). These were taken by England in 1833 and have been retained ever since. At intervals since that time the Argentine

Government has filed a protest, and it was only recently that it was proposed by Argentina that the problem should be solved by arbitration. So far England has not answered the proposal.

ARGENTINA AND BRAZIL

There is, and there has existed for many years, a feeling of rivalry between these two countries. This feeling has been expressed in various manners at international gatherings and in the press of both countries.

In 1890 there were several boundary disputes in the north which in 1895 were settled by President Cleveland, in which Argentina lost 25,000 kilometers of the territory she claimed.

The bad feeling between Argentina and Brazil was further increased in 1923 as a result of the Pan American Conference. During the discussion of limitation of arms, Argentina desired a general discussion with all the South American Republics. Brazil argued against the limitation of arms on account of the long coast line to guard and defend. Later, when Brazil asked for a United States naval mission, there was a general outburst of condemnation against her, and Argentina in 1924 made considerable appropriations to increase army and navy.

At present there are no questions pending between the two countries, but it is evident that there is considerable jealousy and probably envy because of an idea that Argentina has that Brazil is inclined to lean toward and follow the United States on questions of an international nature.

ARGENTINA AND CHILE

There was formerly much more jealousy and rivalry between Chile and Argentina than at present. Argentina now feels that she has advanced financially and economically so far ahead of Chile that she no longer thinks of her as a rival in the political or economic world.

There were two very serious questions between the two countries back in 1900 with reference to the boundaries in the Andes territory and farther south in Patagonia. The first was settled by Mr. Buchanan, under which Argentina received three-quarters of the disputed territory, and the second by King Edward in 1902, in which Argentina received less than half of the land she demanded.

At the present time there is a question of minor importance pending between the two countries as to the possession of two islands near the entrance of the Beagle Canal. This matter has been referred to Great Britain, but no decision has yet been made.

During the Tacna and Arica discussion Argentina remained absolutely neutral, and the press seemed to approve the action taken by the United States. In spite of the neutral position it is believed that Argentina feels more friendly to Peru than to Chile.

ARGENTINA AND PERU

Traditionally the attitude of Argentina toward Peru has been most friendly, and some writers attribute it, to a considerable extent, to the fact that the Peruvian territories were lost to Chile at a time when Chile was passing through a period of expansion which threatened to bring her in conflict with Argentina, or challenge the leadership of the latter in South America.

One evidence of the friendship of Argentina for the Peruvians in the past is that many prominent Argentines, including a former President, Roque Saenz Pena, served in the Peruvian Army during some of their early wars. There are assertions at the present time that this traditional friendship is somewhat dying out. If correct this might be explained as due to some extent to the dictatorial government of President Augusto Leguia, and to a feeling by Argentina that Peru responds too easily to the policies of the United States.

ARGENTINA AND THE UNITED STATES

The British are very active now in trying to reestablish their trade with the Argentine. The British minister has been absent from his post the past six months, and has been making speeches in all parts of England, trying to awaken the British trade. His policy has been open and above board, and in attempting to make his countrymen grasp the situation he has necessarily boosted the American business by his comparisons. The British papers, however, take advantage of every move in the political and economic relations to help the British. Some of their editorials, as the one in the Buenos Aires Herald of April 1, are quite harsh against us. I will quote one part:

> We have definitely asserted that the United States officials were wrong in trying to protect the interests of their farmers by pretending that germs could be carried in frozen meat. They adopted this excuse for closure instead of asking Congress to raise the tariff wall still further, a proposition which would undoubtedly have created some public opposition. The agitation in Argentina was based on sound reason and, in the end, the United States Government decided diplomatically to settle the matter by requesting full inspection in Argentina, an inspection, however, which has never been lacking. It was a graceful withdrawal from an untenable position and one would have thought that the Argentine Fourth Estate would have been pleased at its victory and have consequently reduced the volume and bitterness of its criticism.
>
> Unfortunately, we have noticed no such diminution.

The owner of the Herald also owns the Argentine Times and it is anti-United States whenever it profits the British. Other British papers, the Standard and the Review of the River Plate, are equal guardians of British interest but more dignified in their utterances.

The worst feature, however, is the despatches that come from the United States through the news services. The United Press serves among other papers La Prensa, which never misses any anti-United States news. The Associated Press serves the Nacion. I am informed that this organization has contracts with foreign government owned or foreign government controlled news agencies for exchange of news. The result is that only censured European news reaches here through that source, while the United States news services send anything they wish from the States.

All acts of the United States which they can class as blunders are magnified and promptly published by the news services here. Mr. Hoover's speech that no more money would be loaned countries to buy munitions, while across the street Mr. Kellogg says that he knows nothing of such a policy; a report from Costa Rica that their legislature had passed a resolution of protest against the Nicaragua situation which all other Latin American countries would be requested to approve, and then it would be sent to Mr. Borah; Mr. Kellogg is reported as having sent Mr. Stimson to Nicaragua with certain instructions and he immediately does things contrary to them; and the discussions of different politicians and especially Mr. Borah and Mr. Wheeler. The latter is credited with the following: "President Coolidge and Mr. Kellogg are warring against Nicaragua in the interest of Wall Street, the bankers, and the big men thereof."

Then there is a writer in New York, reported to be an Englishman, who very frequently sends down articles marked "Special for La Prensa." Yesterday there was published a full column and a half on the subject "United States Diplomacy in Spanish America." Among other things he said:

> It is natural therefore that a nation should feel satisfied at the conquest of its liberty, and especially if prosperity grows in the following generations. Many other countries have experienced this same sensation. But until this day in all history the United States is the only one who geographically has been insured against invasions, and economically has been independent of the rest of the world. These factors have tended to augment the complacency of the nation till it has reached such a pitch that the greater number of the citizens of the United States believe they can ignore the rest of humanity and live their own lives disdainfully, heedless of international happenings. These ideas have not been quite so bluntly expressed in international communications, but it is true that in the press and in political speeches they have been put even more crudely still. God has divided the world into two parts, the United States and the rest of the world, making special concessions to the former and designating the latter to bear all unpleasant consequences of Divine wrath.

This sentiment has been cherished with a religious fervor by a great number of North Americans, and still exists.

The La Prensa at present is carrying on a regular campaign against the United States because of the Nicaragua situation. Every few days a long editorial is issued.

Other factions no doubt contribute to this anti-American propaganda. The Communist influence is practically nil. The Latin countries in Europe will, of course, always be present in that field. However, the greatest damage now is being done by United States dispatches.

The political and economic effects of all this in time is certain to be reflected in the official relations between the two countries, though it may not be very apparent at present.

(B) NATIONAL REACTION TOWARD THE MONROE DOCTRINE

The substance of the Monroe doctrine as announced by President Monroe in his message to Congress on December 2, 1823, is as follows:

That there shall be no further colonization in America by European powers; that there shall be no extension of monarchial form of government to republican American countries; and that the United States would defend all American countries against any European aggression.

This message was received in Buenos Aires on February 8, 1824. The American minister in Buenos Aires wrote a few days later to President Monroe that the message would have a happy effect throughout Spanish provinces. Three months later the same minister wrote to the Secretary of State, Adams, that the President's message had produced a very good effect but that he looked more to the permanent benefits to be derived than to the temporary effect. In December, 1824, the President of the Argentine Confederation in his message to the National Congress said, with reference to President Monroe's message:

* * * It (United States) has at the same time made an appeal to our national honor by supposing us capable of contending single handed with Spain; but it has constituted itself the guardian of the field of battle in order to prevent any foreign assistance from being introduced to the aid of our rival.

The Governor of Buenos Aires Province in receiving the United States minister, Forbes, alluded to the Monroe doctrine and spoke of the good to result therefrom. This friendly feeling toward and reception of the Monroe doctrine continued till about the time of the Mexican War. With that war, the Walker expedition to Central America, and even more so Argentina industrial development, Argentina began and does now resent more than anything else the big

brother or tutelage attitude of the United States toward Latin America.

As the years passed and the foreign relations became more involved two more principles became known as essentials of the Monroe doctrine: That European countries could not acquire any territory in America even with consent of the nation involved or by adjustment of boundaries, and that non-American countries could not occupy any portion of the American Republics for collection of debts where acquisition of territory was involved. The United States in 1861 agreed to European countries collecting debts in Mexico until they started to set up an empire. Then the Venezuelan case, wherein Germany asked permission to collect debts from that country provided the Monroe doctrine was not violated. The United States then offered to act as collection agent. The direct result of this case and the policy announced for the United States by President Roosevelt was the Drago doctrine. Louis M. Drago was at that time Foreign Minister of Argentina, and he made a vigorous protest that nations did not have any right to intervene for the collection of debts, and, among other things, stated that "collection of loans by military means implies territorial occupation to make them effective, and territorial occupation signifies the suppression or subordination of the governments of the countries on which it is imposed." A little later the Argentine statesman Calvo went a little further and announced a principle that came to be known as the Calvo doctrine. It claims that governments are not responsible for losses of life and property suffered by foreigners during internal disturbances, and to demand and enforce indemnity would necessarily deprive nations of the essential of their independence—territorial jurisdiction.

The interpretation and application of the Monroe doctrine by President Roosevelt has caused more reaction against the doctrine than the action of any other statesman previous to the present administration. Remarks in a speech made by him in 1904 caused wide outbursts in Argentina:

> Chronic wrongdoing or an impotence which results in a general loosening of ties of civilized society may in America, as elsewhere, ultimately require intervention by some civilized nation, and, in the western hemisphere, the adherence of the United States to the Monroe doctrine may force the United States, however reluctantly, in flagrant cases of such wrongdoing or impotence, to the exercise of an international police power.

Secretary of State Root, in his speech in Rio de Janeiro in 1906, poured much oil on the troubled waters, and still later Mr. Wilson endeared himself to the people of this country by policies he announced—only later to be condemned for the acts he committed. All of our relations with Cuba, Panama, Haiti, San Domingo, and Central America, have been interpreted by the people of Argentina

and the press as in accordance with the Monroe doctrine and against the Drago and Calvo teachings. In December of 1923 on the hundredth anniversary of the Monroe doctrine, there was considerable discussion on the subject in the United States and South America. Mr. Hughes made a statement that the United States would look with disfavor upon one Latin American nation attacking another. This brought a general protest from practically all Buenos Aires. Mr. Hughes in Minneapolis during the same year, before the Bar Association impressed the point that the Monroe doctrine was distinctly a policy of the United States and "the Government of the United States reserves to itself its definition, interpretation, and application." This has always been a thorn in the side of Latin America.

At the fourth Pan American Conference Brazil endeavored to secure a unanimous resolution by the conference expressing to the United States its appreciation of the Monroe doctrine. Upon objection by some of the delegates, including the Argentines, as to the wording the matter was dropped.

The Mexican and Nicaraguan relations have caused a considerable amount of criticism of the United States in the local press. Just how widespread is the feeling is hard to gauge. In January of 1927 a meeting was called by the Liga Pro Union Americana to protest against the intervention of the United States in Nicaragua. Some 2,000 people attended; it was however a very unenthusiastic gathering. No doubt some communists were mixed with the crowd, as the true purpose of the meeting was entirely changed by an anarchist who had chained himself in a tree (so the police could not pull him out) and began a harangue on Sacco and Vanzetti. In February of this year an attempt was made to hold a similar meeting when only six or seven hundred attended. La Prensa is now conducting an editorial campaign on this subject. As is the practice of that paper in such cases, about every third day they issue an editorial on the subject. Many of them are very rabid. Speaking of Mr. Coolidge's speech before the press in New York the following comment was made: "It does not contain a single piece of good news nor a healthy principle, nor an illustration of democracy, equality, or justice" (May 1, 1927). On April 8, a long editorial on the subject "Two-Edged Sword" appeared. The first paragraph is:

> In all the histories of international treaties, we may safely say that possibly none have proved so elastic as the interpretation given by the United States to the Central American treaties of Washington. These are twisted and molded to suit each new phase of United States politics, until those people who scarcely understand, and show little interest in such matters, are surprised at the convenient and unexpected manner in which these revered documents are interpreted.

There is no question that La Prensa is the paper that most of the upper middle class Argentines read and there is no question but that it has great weight with officials of the Government (as well as with the people) and that this apparent campaign against the United States will have considerable effect in time.

(C) ATTITUDE TOWARD THE LEAGUE OF NATIONS

The head of the Argentine delegates to the formation of the League of Nations in 1919 was Dr. Honorio Pueyrredon, now ambassador to the United States. He was at the time Minister of Foreign Affairs in President Irigoyen's cabinet.

The delegates were given definite instructions that the following provisions must be taken cognizance of by the league, as a prelude to Argentina joining:

1. The universality of the league.
2. The equality of the nations.
3. Effective and identical responsibility for all states adhering to the league.
4. The functions of the league not to be retroactive.

On assembling of the league it was decided that the above points would be considered as "annexes," so President Irigoyen issued instructions for the Argentine delegates to withdraw. From then, till the end of the Irigoyen administration, October, 1922, Argentina had nothing to do with the league.

President Alvear was one of the delegates in Doctor Pueyrredon's party. As soon as he became president, and for the last five years, he has tried to secure from the National Congress an expression of their will as to joining the league. Personally he and Doctor Gallardo, Foreign Minister, are very strongly in favor of Argentina joining the league, and it is rumored that they will succeed in September of this year. Such success is contingent upon approval by Congress.

At present their status is similar to the United States. They have observers present and they have taken part in recent disarmament discussions.

(D) PAN LATINISM

ATTITUDE OF GOVERNMENT AND PUBLIC TOWARD SUBJECT

The Argentine Government is neutral so far as any official attitude is concerned. Personally, no doubt, each member is pro-Latin in his feelings. The President is especially partial to the French. He was ambassador there, and should his party win in the next election, he will probably return to France as minister.

There are various societies of Latin American countries in Buenos Aires, but none have any official connections.

Dr. Alfredo Palacios and Manuel Urgarte have been leaders in fostering Pan Latinism. The former is a professor of history in Buenos Aires and generally presides at all Latin American meetings. His preachings as described in his own words are:

> My attitude is frankly one of opposition toward the Pan American movement; because I know that in a union of that sort the weak and separated peoples of South American must become the satellities and servants * * *. The only salvation for these democracies of the south lies in the recognition by them of their mutual identity of race and their inevitable unity in destiny, thus bringing about a confederation of all of them to constitute a great power, like the Republic of the North, with which it might deal thus in analogous conditions * * *.

Palacios has no standing with the Government who consider him a pretty poor sort. So far as can be ascertained he has no connection with Soviets nor is he on the pay roll of any particular propaganda interests. Manuel Urgarte, the author of "El Porvenir de la America Latina" has consistently advocated Pan Latinism as against Pan Americanism and the Monroe doctrine. He hates the United States to such an extent that he has even preached Pan Japanism. He is now living in Nice.

ACTUAL SUPPORT BEING GAINED

I do not believe any such movement is gaining any support. New attempts are made from time to time but no one of any standing in this country is connected with them and it is predicted that nothing will ever come of it. Economically it is not sound and it lacks leadership. Pan Americanism they tried for 50 or 60 years and accomplished nothing till the United States took charge of it. I do not mean that we should ignore it even though it is of small influence. Small though it may be it is certainly anti-United States to the core.

BRAZIL

A. AERONAUTICAL

1. Commercial Airports in Brazil.

The weekly publication, Brazilian American, recently contained the following article:

> With air traffic between Brazil and Europe expected to increase steadily, the attention of Brazil has been turned to the development of her northern ports as airline stations, and to the improvement of her islands near the equator as fueling bases and landing ports for trans-Atlantic planes.

The Island of St. Paul, known locally as Os Rochedos São Pedro e São Paulo, was mentioned in the presidental message of President Washington Luiz (May 4, 1927) as a future air port on the trans-Atlantic line. A few days following the presidential message, a bill was introduced in the senate for the construction of an aerodrome in Natal, fuel tanks on the Island of Fernando Noronha and St. Paul Island, and the construction of a light-house on the latter island, to be an homage to Santos Dumont, Brazil's hero of the air and known among Brazilians as the Father of Aviation.

This bill is designed principally as part of the national program of defense in the air, as Brazil realizes that she must keep pace with other nations in the development of aviation. The bill contains a clause permitting private aviation companies to construct storage and landing facilities on St. Paul Island, which may be taken over by the Government in an emergency.

"With the present development of aerial navigation," President Luiz stated in his message, "the improvement of Os Rochedos São Pedro e São Paulo as an air station is indispensable, where airplanes may descend and receive fuel, permitting journeys to be made with more cargo and more convenient stops." The President discussed the future of St. Paul Island in connection with the national defense program.

A French navigation company now has the concession for the possible ultimate construction of stations in Natal, Fernando, and St. Paul Island. The company's concession includes ports from Recife to Pelotas, or all the cities north of Rio Grande do Sul now visited by trans-Atlantic steamships. It is agreed that the concession may be extended to Natal and the northern islands at a later date.

With proper landing facilities on St. Paul Island the trip from Porto Praia, in the Cape Verde Islands, to Fernando Noronha (the hop completed by Ramon Franco and De Pinedo, and missed by only 80 miles by the Braziliain aviators on the *Jahu* when two screws worked loose in the propeller of their machine), will be reduced from a single flight of 1,430 miles to two hops, the first of 1,050 miles and the second, from St. Paul to Fernando, of 380 miles. On this route the flight from Porta Praia to Natal, the nearest port of any size on the Brazilian coast, would be broken into two hops, one of 1,060 miles (Praia-Rochedos), and the other of 620 miles, from Rochedos to the mainland.

Fernando Noronha is only 185 miles from the Brazilian mainland, but so far no trans-Atlantic flyer has been able to complete the hop from Porto Praia to the coast without stopping at Fernando. Franco passed the island, but returned and landed a few minutes later. De Pinedo also continued toward the mainland, but descended after proceeding a few kilometers and was picked up by a Brazilian warship. An Italian steamer towed the *Jahu* into Fernando after the Braziliain flyers landed on the high seas.

In De Pinedo's opinion, Natal is destined to become a port of great importance in trans-Atlantic aviation. The city is located on the easternmost point of Brazil, and its natural harbor facilities, according to the Italian ace, are very favorable for the development of an air port. Recife and Bahia would follow as the next two ports toward the south, although their harbors are not as well adapted to the needs of aviation as Natal's.

Brazil is looking ahead and making ready for the next general method of transport and communication by air. When competition between Zeppelin lines and giant trans-Atlantic mechanical birds become hot on the South American routes Brazil will meet the requirements of the occasion.

NOTE.—As reported in previous Bulletins, the Spain-Buenos Aires airship route is scheduled to commence next summer. The first ship for this purpose is now being built in Freidrichshafen.- Ed.

CHILE

A. NAVAL

1. New departmental naval organization.

[The following law decree outlining the new departmental organization of the navy was recently published in the Diario Oficial.]

SECTION I

COMMAND AND ADMINISTRATION

ARTICLE 1. The naval forces of the Republic will be under the direct orders of the Government.

ART. 2. The Minister of Marine will assume the duties and functions which at present pertain to the director general of the navy and the naval council.

ART. 3. The Minister of Marine will exercise the command and administration of the navy by means of regulations, decrees, orders, and instructions.

SECTION II

NAVAL FORCES

ART. 4. The naval forces afloat, on land, or in the air, organized in squadrons, divisions, or in independent groups, will be directly under the Minister of Marine to whom will be subordinated the respective commanders in chief, commodores, and commanders.

ART. 5. The chiefs of naval missions abroad will be directly under the Minister of Marine.

SECTION III

ADMINISTRATION

ART. 6. The Minister of Marine will administer the higher services, and without prejudice to his own supreme authority, by means of directorates, naval stations, departments, and sections in the manner which the respective organic law will specify. These directorates, etc., will be directly subordinate to the Minister of Marine.

ART. 7. The divisions of the Ministry of Marine will be as follows, in accordance with the general lines established by the law of June 20, 1887, for the subsecretariats of state:

(*a*) Subsecretariate: In addition to the functions imposed by law, this division will also perform the duties of the present secretariate general of the navy.

The legal department of the navy will form an integral part of the subsecretariate, which will advise the Minister of Marine on legal and judicial matters which relate to the service of the navy, and will have the obligations, powers, and prerogatives which may be indicated by laws and special regulations.

(*b*) Directorate of Naval Operations: The functions of this directorate will be essentially technical; the preparation in peace for action in time of war.

Especially will it have in its charge the study of the following matters, subject to the decision of the Minister: Organization; instruction in naval tactics and strategy; the drawing up of plans of operations; editing of naval history, national and foreign, of use to the navy; preparation for maneuvers and planning of general exercises for the squadrons, divisions, and independent ships; distribution and movements of the naval forces.

This directorate will maintain relations with the general staffs of the commanders in chief afloat and of shore stations. It will consist of the following principal departments:

1. General staff of the navy.
2. Department of navigation and hydrography.

(*c*) Directorate of matériel and supplies: This directorate will have the administration, preservation, and repair of naval matériel and of matériel for war, afloat, on land, or in the air; the study of new construction and repair of matériel; the administration, preservation, and repair in everything relating to the living (quarters) and equipment of the personnel.

It will consist of the following principal departments and sections:

(1) Department of armaments,

(2) Department of naval engineering,

(3) Section of purchase and supply,

(4) Section for repair and preservation of matériel which does not come under departments (1) and (2).

(5) Section for hydraulic works and architecture.

(*d*) Directorate of personnel: This directorate will have charge of everything relating to assignment, movement, recruiting, welfare, professional instruction, and qualification of the personnel.

It will consist of the following principal departments and sections:

1. Section of mobilization, recruiting, assignment, and promotion of the personnel;
2. Section of schools, instruction, and study for the professional life of the officer personnel;
3. Department of naval sanitation;
4. Department of the judge advocate general of the navy.

(*e*) Directorate of maritime territory: This directorate will have charge of everything relative to maritime territories, lights and buoys, radiotelegraphy (land stations), merchant marine, fisheries (such as are not under the control of the ministry of agriculture); maritime registration and compulsory naval service.

It will consist of the following principal sections:

1. Merchant marine.
2. Maritime territory and lights and buoys.
3. Radiotelegraphy (land stations).

(*f*) Office of fiscal control: There will be an office of control (fiscal) for the navy, which will be in charge of an accounting officer (oficial contador) of a rank not below that of captain ("Capitan de Navio") and whose duties and attributes will be especially the following:

To compile records and reports which the Ministry of Marine may need to solve the problems relating to the finances of the navy; administration of the budget; maintenance of the fleet and shore services; supplies of arsenals and reserves of materials and stores;

To keep statistical résumés of supplies, materials, and stores; collaborate in the logistic work of the general staff; calculate the cost and the necessary means to carry out the plans of movements and will coordinate data which shall be submitted for the purpose of drawing up the naval budget estimates.

It will work in cooperation with the directorates of personnel and of matériel in anything which concerns them.

It will be guided by the instructions of the chief of the general staff in so far as its duties relate to the movement of the fleet and its supply.

(*g*) Commissariat general of the navy (auditing, etc.): There will be a commissariat general of the navy in charge of a civil officer appointed by the

Executive (President) who, with the title of "Director of Commissariat," will have charge of the accountability, legality of disbursements, and auditing of the moneys of the Navy budget, with the functions, duties, and attributes which this department has had heretofore.

SECTION IV

NAVAL STATIONS

ART. 8. The naval stations will be directly under the Minister of Marine.

ART. 9. There will be five naval stations, namely:

Arica, which embraces the littoral of the maritime divisions of Arica, Tarapaca, and Antofagasta.

Valparaiso, which embraces the littoral of the maritime divisions of Atacama, Coquimbo, and Valparaiso as far as the mouth of the Mataquito River to the south.

Talcahuana, which embraces the littoral of the maritime divisions of Maule, Concepcion, and Valdivia from the mouth of the Mataquito River on the north.

Puerto Montt, which embraces the littoral of the maritime divisions of Llanquihue and Chiloe.

Magellanes, which embraces the littoral of the maritime division of Magellanes.

The commander in chief of the naval station of Valparaiso will be director of maritime territories.

ART. 10. The commander in chief of naval stations will have charge of matters concerning the defense of the coasts in the region under his jurisdiction; supervision of the service of observation and communications within the corresponding sector; supervision of the maritime authorities within his jurisdiction; the enrollment and mobilization of the elements necessary for defense; service of recruiting and of administration.

The commanders of naval stations will have charge of—

1. The groups of coast artillery and fortifications which may be within the territory under their jurisdiction;

2. The ships out of service undergoing repairs which do not belong to squadrons or divisions and the independent ships; and

3. Arsenals, hospitals, schools, and other naval establishments, land or air, that may be within their jurisdiction.

SECTION V

INSPECTORATE GENERAL OF THE NAVY

ART. 11. There will be an inspectorate general of the navy, which will be in charge of a flag officer, who will have the rank and functions of the present director general of the navy, and whose attributes will be inspective.

ART. 12. The inspectorate general of the navy will be organized in the following manner:

Secretariat.

Inspectorates of—

- Naval and coast artillery and target practice.
- Torpedoes and submarine arms.
- Communications.
- Navigation and hydrography.
- Aviation.
- Electricity.
- Naval engineering, construction, and repair.
- Maritime territories, lights, and buoys.

ART. 13. The inspectorate general of the navy will have charge of—

(*a*) Supervising the instruction and inspecting, with the authority of the Government, of all the services of the navy afloat, on land, and in the air.

(*b*) In time of peace the inspector general will be the director general in the naval maneuvers in which large units take part, and in time of war he will have chief command of the naval forces and will have as his chief of staff the assistant chief of the general staff of the navy.

As a result of his inspections, he will submit reports to the Minister of Marine as to whether or not the different regulations, etc., are being complied with.

(*c*) Proposing such changes as he may consider necessary for the advancement and progress of the navy and studying and deciding upon the subjects which the Government may commend to him.

(*d*) He will have charge of the compilation and editing of the naval report.

ART. 14. The inspector general of the navy has the power to treat directly with the subsecretariat and the different directorates, naval stations, sections, squadrons, etc., in requiring information and reports that may be necessary for all subjects relating to his important mission.

He must especially concern himself at all times with the instigation of all means conducive to obtaining better preparation and efficiency in the naval forces for war, giving (assigning) to the general staff the boards which will concern themselves especially with the plans of campaign and mobilization.

ART. 15. He will take care that in every case there is no section, naval station, squadron, independent ship, fortification, etc., that is not inspected at least once during each year, from a military as well as administrative point of view.

For administrative inspection he will be assisted by the comptroller (fiscal) of the navy.

At the termination of the period of instruction of the squadrons, divisions, school ships, schools, and other institutions of instruction he will submit to the Minister of Marine a critical report expressing clearly the opinion which has been formed of the state of the personnel, material, instruction, maneuvers, and exercises carried out, proposing at the same time such reforms and recommendations which he deems necessary or desirable for the betterment of the service.

SECTION VI

ADVISORY BOARD

ART. 16. In addition to the council of national defense established by law, there will exist a "junta consultiva" (advisory board) to advise the Government on naval matters, which will be composed of the inspector general, the directors, chiefs of departments, commandants of naval stations, commandants of squadrons or divisions, and those admirals present in Santiago.

The subsecretary will be secretary of the advisory board.

SECTION VII

GENERAL PROVISIONS

ART. 17. The directors, chiefs of departments, commanders in chief, and other chiefs will be appointed by the Supreme Government.

The directors will be chosen from not below the rank of captain ("Captain de Navio"); chiefs of departments from not below the rank of commander ("Captain de Fragata").

ART. 18. The following will have their headquarters in Santiago:
Ministry of Marine,
Inspectorate general of the navy.
General Staff of the navy.
Directorate of matériel and supply.
Directorate of personnel.

AUTHORITY

ART. 19. The directors and chiefs of departments will have all the powers inherent to their offices and the necessary freedom and independence, without prejudice to proper military subordination (discipline), to produce the desired efficiency in the respective services.

ART. 20. The directors and chiefs of departments will administer the funds allotted in their respective budgets and will be personally responsible before the Minister of Marine and respective authorities.

ART. 21. The chiefs of departments will be able to go directly to the Minister of Marine with all essentially technical matters relating to their departments.

ART. 22. The divisions or departments of the Navy which are referred to in this organic law will continue with the complement which the service, in the form specified by the respective regulations, requires.

ART. 23. The regulations approved by the President of the Republic, which specify the functions, attributes, and duties of each directorate, department, or section, will form an integral part of this organic law.

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2. *Competition for new destroyers.*

Messrs. J. J. Thornycroft (Ltd.) obtained the contract for the construction of six Chilean destroyers. As soon as the award had been made keen competition developed between the British firm of Armstrong, Vickers & Co. and the Swedish firm (affiliated with Krupp's) of Bofors & Co. to furnish the requisite armament for the destroyers.

It appears that the Chilean naval mission in London had been negotiating with the two firms for some time and, having been instructed by the ministry of marine to accept the most advantageous offer, had virtually closed with Bofors. It is generally assumed that the presence in Santiago during the past two months of the Swedish minister, Mr. Eric Ekstrand, who usually resides in Buenos Aires, was not unconnected with these negotiations. Bofors are represented in Chile by Messrs. Errazuriz & Co. and the Swedish minister doubtless lent them his moral support. However that may be, the Chilean Minister of Marine informed the Swedish minister that Bofors had obtained the contract and Mr. Ekstrand thanked him for his cooperation. But a few days later the Swedish minister learned that the Minister of Marine had instructed the mission in England to award the contract to Vickers, because the British minister in Santiago, Sir Thomas Bohler, had objected on the ground that as the destroyers were being built in England to order their armaments from a foreign

firm would be construed as an unfriendly act. Upon making inquiries of his legation in London the Swedish minister was informed that the British Foreign Office stated Sir Thomas had received no instructions to that effect and that he must have acted on a cable from Vickers direct. Mr. Ekstrand then remonstrated with the Chilean Foreign Office but was told by the Undersecretary that as nothing had actually been signed between the naval mission and Bofors the Chilean Government did not feel bound and, in any event, it was under many moral obligations to Great Britain, which had often and in a practical way proved her friendship for Chile.

NOTE.—As in the case of the Argentine program no bids were asked or received from the United States. Chile is also infested with a certain amount of anti-American virus which the British turn to their advantage.—Ed.

FRANCE

A. NAVAL

1. Communist propaganda in French Navy.

The English Communists distributed leaflets (printed in French) among the sailors of the French Navy during their recent visit to England.

The leaflet bears the imprint of the Communist Party of Great Britain, declares that England is not a free or happy country, and that the "brutal Government" is trying to break the working classes, is carrying on a "great war" in China, and is preparing war against Russia. "We are sure," the leaflet says, "that you are against this war and this imperialist attack on the Chinese people and the Soviet Republic." Certain economic and other demands are urged upon the French sailors, and the leaflet concludes with the cry, "Down with Poincaré and Baldwin! Fraternize with the British sailors!"

The translated text of the leaflet is as follows:

GREETINGS FROM THE ENGLISH WORKERS

Comrades, you are visiting England at a moment when the working classes are being attacked. The capitalist Government has already imposed the longest working day and the lowest wage on 1,000,000 of miners, after a lock-out which lasted seven months. Now Mr. Baldwin is trying to break up our trade-unions, which count over 4,000,000 members.

England is not a free or happy country. Millions of workers are reduced to famine wages; 2,000,000 are out of work. Thousands of workers were thrown in prison last year during the strike.

C'EST LA GUERRE

Our brutal Government is carrying out a great war in China. Already over 50,000 soldiers and sailors and 100 warships are concentrated in China. Poincaré is working hand in hand with Baldwin in carrying out this war against a people struggling for liberty. The allied imperialists are likewise preparing a war against the working Government of Russia.

The English workers are against war. When we recall your splendid action in the Moroccan war we are fully convinced that you are against this war and against the attack of the imperialists on the Chinese and Soviet Republics. We are full of admiration for the French sailors, who protested against the war in Morocco, and we join with you in proclaiming liberty for the 15 sailors who are undergoing sentences amounting to 40 years' prison.

NOUS SOMMES AVEC VOUS

The English workers are the enemies of the French capitalists. But we are the friends of the French workers, including you who are serving in the army and navy by force. Continue, comrades, the struggle for the following demands; the workers of the world are with you:

First. The right to separate from military service as soon as legal term is served.

Second. Increase of pay.

Third. The right of personal representation.

Fourth. The right to read working-class newspapers, to organize and belong to trade-unions.

Fifth. Better nourishment.

Sixth. The resignation of brutal petty officers.

Seventh. Struggle for your rights, down with the war against Russia, do not take part in the English war in China, down with Poincaré and Baldwin, fraternize with the English sailors.

(Signed): The executive committee of the Communist Party of Great Britain. The executive committee of the League of Young Communists of Great Britain.

NOTE.—Further reports on communistic activity in the French Navy were given in the June and July "Bulletins."—Ed.

B. ECONOMIC

1. Economic estimate.

France lacks many of the raw materials necessary in the manufacture of munitions, and therefore in a war of long duration she must be assured open sea routes to enable her to carry on successfully in a munitioning capacity. The dependence of France on foreign countries for her supplies has engaged, especially in recent years, marked parliamentary and public attention.

Commercially and industrially, France is reasonably properous. Engaged in war, the nation is practically self-contained as to food. Her capacity to manufacture munitions and material is adequate for her own requirements. With her colonies and regions under

French control as sources of supply, she has practically everything needed except oil for a war of short duration. To engage in hostilities of long duration, she must have raw materials and be assured of open sea routes for importation of cotton and fuel oil, and must preserve her communications to North Africa to supplement her supplies and man-power.

France's economic condition (except in finance) is more satisfactory now than at any time since 1914. Before the war France was essentially an agricultural country and to-day her farms have virtually returned to their pre-war productivity. The greatest economic progress, however, has taken place in manufacture, and now French textile factories, steel mills, and iron foundries are turning out products in a volume many times that of the pre-war period.

Another result of the augmented production of the manufactured goods has been the remarkable increase of exports, while at the same time imports have remained stationary.

This fundamentally strong condition of French private business and banking constitutes the basis for the belief that the nation is in a position to adopt a strong fiscal policy entailing heavy taxation with good prospects of success, political conditions being the only hindrance to such action.

The major problems of the international debts and stabilization, however, remain to be solved. The official optimism in this field is revealed in the attitude of the Government as to the general economic prospects even at the end of the year.

GERMANY

A. NAVAL

1. Visit of squadron to Lisbon.

The visiting German battleships *Schleswig Holstein* (flagship), *Elsass*, *Essen*, and the cruiser *Berlin* have been in Lisbon. The proposed festivities have not only been carried out, but have even been improved on. For instance, thousands of Lisbon people acclaimed the German naval band as it marched up the streets of the city. As the German object, as stated by their ambassador, was to strengthen cordial relations between Portugal and Germany, it can not be denied that the visit of their fleet to the port of Lisbon has been a great success, judging not only by the official sympathy displayed toward officers and men everywhere, but by the impression gathered by the average man in the street. It is certain that since the war no foreign fleet has been received in Lisbon in a manner approaching the cor-

diality shown now. The average Portuguese comments favorably on the fact that enlisted men from these ships maintained while on shore the most correct attitude ever observed with men of equal ratings of other visiting fleets, and that they were not noisy or troublesome, refrained from drinking, and were most deferential to everyone, especially toward women of all classes. There is no doubt but that extremely stringent orders must have been issued to all liberty parties, as the discipline of the men on shore was most noticeable.

NOTE.—Germany, like France, is giving much attention to flag-showing cruises, with an obvious purpose. The visit of the "Elsass" (in French, Alsace) to Lisbon was bitterly criticized by M. Poincaré recently in a public speech.—Ed.

GREAT BRITAIN

A. NAVAL

1. "Landstad" naval antiaircraft fire-control system.

DESCRIPTION

The "Landstad" antiaircraft fire control is provided with electrical connections between the director (or range finder), control table, and gun stations.

The connections, however, between the director and the control table may equally well be mechanical. It will, however, then apply to cases only where these units can safely be placed close together.

In many cases, however, it will be unsafe to place the control table in the more exposed position near the director and with regard to naval-fire control it is essential that a roll-correcting unit in the control table should be placed as near to the "metacentre" of the ship as possible, it would therefore, in such cases, be difficult to connect the director with the table by mechanical means, unless the roll-correcting unit is placed away from the control table which, however, will give rise to other difficulties.

One object is here briefly to describe the method of the electrical transmission and the limits of accuracy that can be attained thereby.

And in view of the advantages obtained by having the table placed in a protected position and somewhere near the "metacentre" of the ship and in consideration to the fair accuracy in transmission of data from director to control table, it is a matter of judgment whether a system as this, when electrically connected, should not give best results.

In the case of a fixed station on land and for a mobile purpose the system would be considerably simplified by deleting all mechanism in connection with ship's speed, course, and roll.

In such cases it would be an easy matter to arrange simple mechanical connections between the director and the control table.

At the gun stations the data of sighting and setting elements for the guns are received in the most direct way for purpose of minimizing any possible "lag." That is to say, the director setting and the director training—i. e., the present angle of sight of target and the present bearing of target, respectively—are transmitted from the director and are received at the gun stations direct in steps of 3 minutes of arc, and to this is automatically added the vertical deflection and the lateral deflection in azimuth in steps of 3 minutes of arc by the transmission of same from the control table.

The maximum rate at which the director setting and the director training can be applied to the gun red pointers at the gun stations is 10° per second. To this the deflections are added or subtracted at a maximum rate of 10° per second (in 3-minute steps).

The maximum rate, therefore, at which the gun red pointers can be set in changing from maximum "left" deflection to maximum "right" is 20° per second, representing the maximum rate of training and laying of the gun.

With regard to above rates it may be mentioned here that the particular receiving motors intended for this control system are capable of dealing with 200 steps per second.

The above transmission is by the usual "step by step" method.

As the safeguard to prevent the gun receiving motors getting out of step with the director training and elevating transmitters these transmitters have been provided with adjustable speed-control mechanism and with a double-acting "take-up" spring which comes into action should the rate of training or the rate of elevating from the director be excessive (i. e., more than 10° per second).

The transmission of director setting and director training to the control table consists of a self-synchronizing hunting switch device which is placed on the director. This hunting switch controls reversible power motors in the control table and will enable a synchronous "hunting up" anywhere within the limits of transmission—which for training is 360° and for elevation is 90°—at a rate of 10° per second.

The settings received at the control table are automatically transmitted back to the hunting switches on the director in steps of 3 minutes of arc in order to break the circuit in the hunting switches when synchronous settings have been obtained.

In the case of any break-down of this circuit, a secondary transmission is provided consisting of the speed-controlled director transmitters described above. These transmitters, apart from transmitting director setting and director training to the gun stations as described,

also transmit to the control table these same settings in steps of 3 minutes of arc to a hand "follow the pointer" receiving gears.

A "change-over" clutch lever is provided at the control table for the director setting receiving gear and also for the director training receiving gear, for the purpose of changing over to hand drive or to power drive, as desired.

A suitable type of director in conjunction with this system is the one manufactured by Messrs. Barr & Stroud (Ltd.), of Glasgow, and known as the "type UB_2" or "type MT_{12}" height and range finder.

By means of this instrument the movements in space of the target are followed. Ranges and other data are transmitted from here to a computing section of the control table.

The object of the computer, or rate clock, is to interact with the "height and range finder" and to compute or intergrate the factors received from the height and range finder with other factors applied to the table or to the computer.

The results thus obtained within the control table are the continuously determined lateral deflection in azimuth, vertical deflection, and fuze settings.

These gunnery data are all based on the true speed and course of the target through space.

This true speed and course of target through space are in the ordinary way obtained and applied to the rate clock automatically by the application of "speed across" and of "range rate," data which are arrived at from the director (or the height and range finder). In this way due allowance for "wind on target" has been taken into account.

Should target for short intervals be obscured, the operators at the director will continue their training and elevating uninterrupted by means of rate indicators placed at their disposal, assuming, of course, that the target is continuing on its course and at same speed.

A correction to the vertical deflection known as "the complimentary error" has been provided for.

This complimentary error is a function of the lateral deflection in plane of sight and the elevation of target.

Tangent elevation is applied from a fuze curve chart fixed on a drum. This drum is rotated for future elevation. A pointer is set by hand to intersect the particular fuze curve in use, thereby adding the tangent elevation by means of a differential gearing to the vertical deflection.

Roll is subtracted in the plane of sight by the means of a suitable roll indicator.

"Wind on shell" is corrected for automatically by a wind Dumaresq and linkage combined.

"Ship's speed and course" effect on shell is corrected for automatically in a similar way by a "ship speed and course" Dumaresq and linkage combined.

"Drift" is applied to lateral deflection as a function of fuze.

The lateral deflection is converted to azimuth by means of a special linkage.

Finally, the lateral deflection in azimuth and the vertical deflection with all corrections applied are transmitted to the gun stations, as referred to above, by means of "follow the pointer" gears.

The maximum rate at which deflections can be applied to gun stations is 10° per second; this may be regarded as satisfactory, as total deflections for a modern gun, including all corrections, would not exceed 20°.

The fuze settings, which are continually determined by the computer, are transmitted manually from the control table to a fuze key at each gun station in step values approximately equal to one-tenth of a fuze setting. These fuze keys are continually supplied with correct fuze setting with plus or minus allowance for "dead time," and fuzes can be timed from these fuze keys and not necessarily only at even intervals.

Each fuze key is connected mechanically with an automatic electric firing gear, which resets itself automatically every time a fuze has been timed, and the firing can take place automatically.

The fuze keys and the firing gears are under complete control of a commanding officer, who may direct salvos or independent fire at will.

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2. *Royal Naval College, Dartmouth, England.*

The Royal Naval College, Dartmouth, consists of the necessary well arranged and suitable buildings for a maximum of about 600 cadets, there being about 550 there at present, which number is comfortably and readily accommodated.

The instruction is divided into a senior and junior college, the latter having been built last to increase the output of Dartmouth while the junior naval college was still operating at Osborne, but after the war Osborne was abandoned and the new buildings were used for the junior collge at Dartmouth.

Five terms of cadets comprise the junior college, whereas there are six terms in the senior college, a difference in routine being made in favor of the junior cadets, who by reason of their youth are unable to undergo as much training and instruction per day as the older boys.

Cadets enter Dartmouth three times a year, those entering at each time being called a "term," and numbering about 50 on the average. There are three scholastic sessions each year consisting of about 13 weeks each, the remainder of the year being given over to three holiday periods at Christmas, in the spring, and in the summer. The course at Dartmouth consists of 11 of these scholastic sessions or terms, or nearly four years. The age of entrance to Dartmouth still remains the same, from 13 years 5 months to 13 years 9 months.

The practice of combining two or three terms of cadets into a division for purposes of formation and ceremonies is continued as well as the division of each term into three classes, depending on their scholastic proficiency.

For the senior college there are eight instruction or study hours a day, one before breakfast, four in the forenoon, two in the early afternoon, and one after supper, with the middle and late afternoon available for sports which are regulated and controlled. Wednesday and Saturday are half holidays, with only five hours of work on each of these days, and a full holiday on one Saturday in the middle of each scholastic term is also allowed.

The instruction seems to be given mostly by lectures and by explanations of models or large-scale drawings. Particularly with the younger cadets the teaching seems to be of a very simple and practical nature, with unusual effort given to stimulate and maintain the interest of these young scholars. Attendance at their classes shows a very marked difference from the methods at the United States Naval Academy, which no doubt is largely due to the much greater immaturity of the students.

There are six major subjects of the course, viz, English, French, mathematics, science, navigation, and seamanship, of which the first five are taught by civilians and the last by the term lieutenants. These term lieutenants are assigned, one to each term of cadets, and have constant and intimate touch with their cadets; they have their quarters with the cadets, their rooms being located between the two dormitories assigned to the cadets of their term; they are charged with many matters of administration concerning their term, are responsible for the discipline of their cadets and are the means of imparting to these future officers their regard and respect for the naval traditions of their country. The term lieutenants remain at Dartmouth for two years, but at present the college is short of complement by two lieutenants, so that four terms of cadets are being handled by two term lieutenants. It is a source of bitter complaint that the Admiralty will not take steps to correct this situation on the ground that officers can not be spared for this duty.

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The captain in charge at Dartmouth now is Captain Dunbar-Nasmith, the hero of submarines at Gallipoli and one of the comparatively few to whom the Victoria cross was awarded for service in the World War. The assignment of such a popular hero to such a post is typical of the attention given to stimulate pride of service in the young officers. The executive officer and the term lieutenants (some of whom actually are lieutenant commanders) constitute about all of the naval staff under the captain in charge, and the rest of the establishment is in the hands of civilians. Doctor Ashford, the present head master, has been at Dartmouth for about 24 years, though he is soon to be relieved. Many other of the masters have been there nearly as long and practically since the college was established ashore there when the *Britannia* was abandoned. There are also very few enlisted ratings at Dartmouth, but many of those holding civil appointments are naval pensioners with long naval service behind them.

There is very little wastage among the cadets at Dartmouth, it being said that the loss from all causes in a term of cadets for their whole time at Dartmouth would average only about 3 or 4 out of about 50. Such losses as do occur are largely for physical reasons or unavoidable change of circumstances at home, and it is rare that a cadet is dropped for inability to keep up in his studies, or as a punishment. There is a parental attitude shown toward the cadets that seems unusual from the American standpoint, and it is also true that the scholastic standing is based considerably on the capabilities of the least brilliant of the cadets in each term. This is proved by the fact that, for example, it is recognized in the syllabus that the amount of ground covered by cadets in mathematics varies with the ability shown in that subject. A uniform standard is required in navigation, and the quicker cadets who have no difficulty in reaching that standard are able to devote additional time in their last three terms to more advanced work in mathematics, which the slower cadets never cover.

Occasionally cadets fail on their passing-out examinations, but they are usually then allowed to remain at Dartmouth for an additional term and to try the examinations a second time, though this is discretionary with the college authorities. These passing-out examinations are prepared by the Admiralty and are marked there, which is a means of discounting any suspicion of partiality. The marks assigned on the passing-out examinations have great weight in determining the standing of the cadets, the term marks being given weight in the proportion of 1,000 to a total of 3,000 for the examinations. About 25 per cent of the cadets gain what are known as "first-class marks" on passing out from Dartmouth and those are given four

months earlier promotion to the confirmed rank of sublieutenant; about 25 per cent get "second-class marks" and obtain precedence of two months in that promotion as compared to the remaining 50 per cent who obtain merely "third-class" or passing marks.

The discipline of the institution continues apparently to be excellent, serious infractions of regulations being rare. From what was seen and heard, it is not believed that the discipline is as strict as at Annapolis, a greater latitude is allowed in matters of uniform and in the daily life of the cadets. As at many of the other schools in England, "beating" still remains a frequent form of punishment at Dartmouth, the assigned number of strokes of the familiar old weapon being applied by the cadet captain of the term in which the delinquent is serving. The humiliation of this old-fashioned form of punishment is its most effective element, as the suffering involved is not at all serious.

Curtailment of privileges does not seem to be invoked often as a punishment, and recourse to kindly advice and fatherly talks are considered to be sufficient in most cases.

During the first three weeks of each term no privileges are given the cadets to leave the college grounds or for friends or parents to visit them there, but thereafter during each term visitors are permitted and the cadets can leave the college on Saturday afternoons until 7 p. m. and on Sunday from after church until 9 p. m. Dartmouth itself is a very small town, offering no attractions to the cadets, and their time away from the college grounds is usually spent in motor rides, picnics, boating parties, etc., with their parents.

There is very little drill of the cadets under arms even yet, though it has come into the scheme of training to a certain extent in recent years. About 10 or 15 minutes daily at "divisions" each morning, which corresponds to a formation for prayers, is the only time regularly allotted to exercise under arms, and even then only the six senior terms carry rifles, the smaller boys drilling without arms. Under the circumstances the drill of the cadets is unexpectedly smart and snappy.

There are appointed two chief cadet captains from the senior or eleventh term, one for the junior and for the senior college, and about eight cadet captains from the senior term, eight from the tenth term, and six from the ninth term are also appointed, so that there may be one senior and one junior captain for each of the 11 terms of cadets. These cadet officers are appointed for their general proficiency, military bearing, and general character, and are given considerable authority over the other cadets. They are the medium through which the term lieutenants transact much of their business with the cadets, and are an important link in the system of command

and supervision. The son of Rear Admiral Dreyer is now one of the chief cadet captains. It is interesting to note the great number of sons of naval officers at Dartmouth; in the last term entering 16 out of about 50 were sons of naval officers, though this is a rather unusually large proportion.

The subject of engineering at Dartmouth continues to be recognized as important, two hours a week for the first four terms and four hours for the last seven terms being allowed to instruction and practical work in that subject. Here again in the separate engineering building near the water front at Sandquay the subject is treated in a more practical than theoretical sense, there being an unusually large number of models, drawings, and types of machinery available for explanation to the cadets. Their course there includes work in a joiner shop, practical electrical jobs, and drafting room work, where special attention is given to the reading of drawings. The principles involved are made a feature of all engineering instruction, and it is believed that a good, substantial groundwork is obtained by the cadets before their departure from Dartmouth.

Rifle practice has just recently been started at Dartmouth, and several gallery ranges have been more or less improvised for that purpose. No artillery drill is carried out, but exercise in boats, both under oars and sail, is still a great feature of the training, as is also the gymnasium work. There are several good racket courts at Dartmouth, as well as facilities for all the outdoor sports, and the famous pack of beagle hounds, known as the Britannia pack, continues to give the cadets much pleasure and a tremendous amount of exercise during the beagling season.

The sloop *Forres* is now attached to the college, but the opportunities for sea experience have not increased and seem conspicuously small still. During the first eight terms the cadets do not go to sea at all, and during the last three terms they go to sea in the *Forres* for one week each term, thus making a total of three weeks during their entire course at Dartmouth. During this time they perform a certain amount of the ship's work, are given some instruction in practical navigation, receive seamanship training, and spend a proportion of the time in the engineer's department, so it can be seen that no considerable attention can be given to any one of these subjects. When the fleet assembles at Portland near by, as many as practicable of the cadets are taken there for a glimpse of the large ships, but they can receive no serious amount of experience or instruction on them on such occasions.

The living and mess arrangements for the cadets are simple but excellent, about 25 cadets being quartered in one large room, known as a dormitory, where are their beds, clothes lockers, and chests, and for each dormitory there are ample bathing and toilet facilities.

Each term also has its own "gun room" where each cadet has a desk, book shelf, and facilities for study and reading. There is one mess room for the senior and one for the junior college and the food seems ample and well prepared.

Counting all the civilian staff of masters, employees, kitchen hands, and servants, it works out that there is about one civilian on the station for each cadet, the grand total now there being about 1,100.

The college, of course, is equipped with its own chapel, a very good, small hospital, excellent quarters for the captain in charge and for the head master, and a house for bachelor civilian masters. The term lieutenants who are married are not permitted to have their wives live within 50 miles of Dartmouth, as they are required to give their undivided attention to their cadets during the sessions of the college. The ample amount of leave each year which they may spend away from the colleges is considered to make up for this privation. Other married members of the staff, either naval or civilian, live in rented houses nearby.

The practice continues whereby the parents of cadets are required to pay a considerable portion of the expenses of the operation of the college.

On the whole, there is no doubt that a very high state of morale exists at Dartmouth and that it is continuing to serve its purpose to the great satisfaction of probably the large majority of officers of the British Navy, though the movement in favor of taking boys at an older age from the schools of England is gaining ground, from the results being experienced with the system of special entry cadets which is based on that method.

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3. Royal Naval Engineering College, Keyham.

This institution for the education and training of officers for the engineering branch of the Royal Navy is located on the high ground immediately outside the limits of the north yard of H. M. dockyard, Devonport. It consists of a group of fine buildings, started about 1880 and added to subsequently, and is entirely complete in itself with its own gymnasium, drill ground, athletic fields, chapel, dispensary, etc.

The young officers under instruction there are given practical training in one of the shops of the dockyard, in addition to the engineering installations available at the college, but in no other respect is the college dependent upon the the dockyard or other institutions.

An engineer rear admiral is in charge of the Royal Naval Engineering College and there is a large staff of engineer officers and instructor officers as well as civilian professors, the educational

courses being conducted partly by the officer and partly by the civilian staff.

Normally there are 160 midshipmen and sublieutenants at the college, these being divided into 12 sections called "terms," three such terms entering each year and consisting of an average of about 13 young officers. At present there are 149 in attendance at the college. The course lasts approximately four years, there being 12 terms of 13 weeks each with about 13 weeks holiday each year.

Midshipmen who volunteer for engineering duty, come to Keyham from Dartmouth, and from the special entry cadets on H. M. S. *Erebus*, who are given original appointments as cadets for subsequent engineering duties. These latter include boys from Pangbourne and the other nautical colleges, and occasionally boys from H. M. S. *Fisgard*, the mechanical training establishment at Portsmouth, who are appointed midshipmen to come to Keyham.

The midshipmen at Keyham become sublieutenants about two years after entering the college, thus keeping in step with their term mates who enter the executive branch. Upon passing out of Keyham the sublieutenants are qualified for promotion to lieutenants, but they must first obtain a watch standing certificate at sea before actually being promoted.

About four graduates of Keyham go each year to the Royal Naval College at Greenwich for two additional years of very advanced instruction in engineering and mathematics, having been given six months' to one year's service afloat after leaving Keyham, when practicable.

The markings assigned for the whole course at Keyham in five major subjects determine the seniority and rate of promotion of the graduates. A mark of over 70 means 2 points, over 50 means 1 point, under 50 but passing no points; thus 5 by 2 equals 10 points, which is the maximum that can be obtained, and when earned, it makes a difference of about 15 months in promotion to the grade of lieutenant, as compared to one who gains no points.

As far as is apparent, the course of instruction at Keyham is very thorough indeed and includes physics, chemistry, electricity, mathematics, and other allied subjects, as well as engineering itself. Particular attention is given to metallurgy in the course of the chemistry studies, and more attention now is being concentrated on electricity than heretofore because of the probability that engineer officers aboard ship will be given more complete control of electrical appliances than at present. It may be added that the subject of control of electrical matters on board ship is still under discussion, and the present situation is somewhat obscure even to British officers themselves. There is talk of assigning to the torpedo officers only the low

voltage circuits, instruments, telephones, etc., and to the engineer officers all the rest of the electrical installations.

The college is equipped with various types of propelling machinery and the different auxiliaries well set up, so as to afford good opportunity for inspection and practical use by the studuents. There are also several types of boilers of which one or more are kept under steam for supplying power to the college and at which the students are given practical training. As before stated, this is in addition to their practical work in one of the dockyard machine shops.

The last term at the college is given over to diving instruction, small arms practice, antigas training, and miscellaneous similar short courses.

Military drills are continued for the student officers and they are paraded for the commander in chief's periodic inspections.

It is interesting to note that very little sea training is given to these young officers during their four years at Keyham, following upon their service as cadets at Dartmouth or elsewhere, when also they get to sea for only very short periods. The destroyer leader *Saumarez* is allotted to the Royal Naval Engineering College for three days a week and sublieutenants of the ninth, tenth, and eleventh terms are sent aboard that vessel in small detachments for practical instruction and later for the actual operation of the machinery. During their first visits the *Saumarez* remains at the dockyard but on later occasions she gets under way and cruises near by, returning, however, on the same day.

Thus it will be seen that young officers leaving Keyham, though they have been undergoing naval education for about eight years, have had exceedingly little experience at sea, and only then in destroyers or sloops. All are agreed that their lot when first joining a large ship of the fleet at that time is not an easy one.

The general impression given by the Royal Naval Engineering College at Keyham is very favorable in so far as offering a most thorough and excellent education and training is concerned. The British Navy seems entirely satisfied that engineering must be a special branch to be pursued by others than the executive branch of officers, and they feel that this long period of education and training in that subject at Keyham is necessary and proper under their system. It must always be remembered that the graduates of Keyham are only a little under or a little over 23 years of age, depending on their manner of original entry as cadets, and that while they are at college their contemporaries in the executive branch are continuing their education as midshipmen at sea, and thereafter, for nearly a year, during their special courses at Greenwich, H. M. S. *Excellent*, etc.

4. Boys' training establishment H. M. S. "Impregnable," Devonport.

The boys' training establishment known as H. M. S. *Impregnable* is located on the other side of the Homoaze and slightly above the north yard of H. M. Dockyard, Devonport. It consists of four ships, *Impregnables Nos. 1, 2, 3,* and *4,* respectively, the old *Powerful*, the old *Andromeda*, the old *Ganges*, and the old *Caroline*.

The boys are quartered on the *Powerful* and *Andromeda*, and are messed on the *Ganges*, where also are arranged most of their schoolrooms. These three ships are moored close together and are connected with bridges so that communication between them is fairly convenient. The other ship is moored separately and is used for necessary overflow purposes.

Prior to the recent inauguration of a third boys' training establishment at Fortson barracks, Portsmouth, known as H. M. S. *St. Vincent*, the allotment of boys under training was on the basis of 1,000 passing out each year from H. M. S. *Impregnable* and 2,000 from H. M. S. *Ganges*, Shotley near Harwich. In the future, however, the assignment is to be such that 750 boys will pass out per year from H. M. S. *Impregnable*, 750 from *St. Vincent*, and 1,500 from H. M. S. *Ganges*.

While working down to this basis there are at present about 800 boys under training at H. M. S. *Impregnable*, these being organized in six divisions of about 120 boys each, with an additional number of about 80 "advanced course" boys, which latter are the most promising of the total number and which are given special and longer opportunities for training before going to sea.

The boys are enlisted between the ages of 15 years 3 months and 16 years 6 months, who serve 12 years from their eighteenth birthday, after which they may obtain pension privileges by volunteering continuance of their service for 10 years. They remain under training at H. M. S. *Impregnable* about 10 months, counting leave time, and are then sent to ships of the Third Battle Squadron, the *Iron Duke* class, for six months' further training, and then to regular ships of the fleet as units of the regular ship's company. If found qualified they are given the rating of ordinary seamen on their eighteenth birthday.

The "advanced course" boys, called "A. C. boys," are retained at H. M. S. *Impregnable* about 5 months longer than the others, for additional education and training and it is from this class of young recruits that the petty officers of the Royal Navy are usually drawn.

The amount of time and attention given to matters of general education is very striking. For about the first half of the training

period the time of the boys is equally divided between purely educational courses and the various forms of technical training for a seaman's life. Thereafter there is a less proportion of educational work except for the "A. C. boys." A large staff of schoolmasters and instructors conducts regular classes, and the comparatively advanced nature of their studies was very evident in the course of attendance at several of the classes in algebra, physics, etc. This great attention to education is a very conspicuous feature of the whole system of training in the British Navy to-day.

The other forms of training consist of seamanship, boats under oars and sails (to which very particular attention is given), a small amount of infantry and artillery drill ashore, elementary small-arms practice in a gallery range, a small amount of gun drill on *Andromeda* (4-inch and 12-pounder guns), and the various details of shipboard life, including marking and care of clothes, etc. An old hulk is moored alongside the *Powerful* in which has been built a good sized swimming pool and it is absolutely required that each boy must qualify in swimming before being allowed to leave the establishment.

With the exception of drill grounds, recreation fields, and the gunnery rifle range, there are no facilities, equipment, or buildings on shore, and the boys are made to feel that they are living aboard ship by being required even to pull themselves ashore the very short distance to the pier, where they disembark for shore drills, although the intervening space might readily be covered by a bridge or moored lighters. The present arrangement of using these old ships is very expensive, indeed, compared to the cost of a shore establishment capable of handling the same number of boys. The ships require continual upkeep, needing a considerable force of artificers, and the facilities for the boys are, of course, not up to the standard of a shore establishment. However, they are believed to profit in some ways by their life aboard a ship, and the usual pains are taken to stimulate respect for naval traditions by naming the divisions after famous admirals and by designating different parts of the ships by names familiar to the navy. There is keen competition between these divisions, a weekly reward being made based on proficiency in all forms of the boys' activities, including athletics as well as the cleanliness of their parts of the ship, their mess tables, etc. However, it is believed that a change to a shore establishment will be made as soon as funds can be made available. The boys are fed under the general mess system, and the menu is good and varied. The ration costs about 38 cents a day at present. The boys are detailed for short terms of duty as messmen, and in the course of their time under training they are assigned for four weeks to what

is known as the "ship's work detail," when they perform all the various jobs of a working party on board ship. The boys at H. M. S. *Impregnable* are distinctive from those at other training establishments by being required to wear "shorts" throughout their period of training.

Great attention is given to the physical development of the boys, both through organized athletics ashore and physical exercises aboard ship. There is a good gymnasium on the *Andromeda*, and a large staff of physical and recreational training officers and chief petty officers give undivided attention to these phases of the boys' training.

The officers, though far from contented with the facilities offered by the present makeshift arrangement, are enthusiastic about the results that can be accomplished in 10 months with the type of boys that are being enlisted at present, and undoubtedly these boys' training establishments contribute a fine type of well-trained young men for the Royal Navy. Discipline is said to be excellent among them, and separations from the service during their period of training are not of frequent occurrence. The boys present a good smart appearance, and by the time they leave the establishment are quite able to take care of themselves when they get to sea, though they still undergo then even more advanced training for six months in the technical features of naval life. This complete form of training is possible, of course, only because of the long period of the British enlistment, but it is considered by the British to be justified under their circumstances.

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5. Royal Naval Barracks, Devonport, England.

The Royal Naval Barracks, Devonport, is close to the north yard of His Majesty's Dockyard, Devonport, and is very similar to the corresponding barracks at Portsmouth and Chatham. Officers and men attached to the barracks are carried on the rolls of H. M. S. *Vivid*, which gives its name to the establishment. It is under the command of a captain who, as at the barracks at Portsmouth and Chatham, is given the temporary rank of commodore, second class, while holding that assignment.

There are five blocks of buildings, two being used for chief petty officers and petty officers, two for other ratings and recruits, and one for the personnel attending the gunnery school, an adjunct of the barracks. The buildings are finely arranged and with a splendid parade ground and athletic fields constitute a fine establishment.

There are at present about 8,000 all told in the barracks, of whom about 1,000 are recruits. These recruits are the short-term enlistment

entries who join up for seven years on active duty and five years thereafter in the reserves. They include entries for both the seaman branch and stoker ratings and considerable facilities for each form of training are provided. The stokers' training establishment is supplied with an auxiliary craft as tender and there are the usual shops also within the barracks. These recruits when received are kept in a near-by camp during the first part of their training and are later transferred to the barracks.

The gunnery school connected with the Royal Naval Barracks, Devonport, is similar in principle to those at Portsmouth and Chatham, considerably smaller and less well equipped than the former but materially better than the latter. At present there are about 400 ratings receiving instruction there in their first gunnery training or in subsequent "refresher" courses, this number varying very considerably and being low at present because of the fact that drafts for the gunnery department of the *Nelson* recently had depleted the number there.

The destroyer *Saumarez* or other light craft is used for the qualification firing tests of the gun pointer ratings to demonstrate their proficiency to retain their nonsubstantive rating, at intervals as nearly as practicable of two years, being then sent to their home yard gunnery school for that purpose, inasmuch as what corresponds to our short range battle practice is no longer conducted by ships regularly attached to the fleets.

H. M. S. *Erebus* is used by the gunnery school as a turret drill ship in addition to her use as the establishment for training of special entry cadets and as ship of the senior officer of the reserve fleet.

The Royal Naval Barracks and gunnery school at Devonport are finely situated on high land above the dockyard and appear to be in splendid condition and producing results very satisfactory to those in charge.

B. AERONAUTICAL

1. New British aircraft.

[Source: British Press]

Such descriptions as are permitted by the official regulations on the subject of new aircraft are given below of the new and experimental types of British military aircraft which will be on parade at the Royal Air Force display at Hendon. The complete list of the machines to be on view and to take part in the fly-past before the King is appended:

Machine	Maker	Engine	Remarks
Gamecock	Gloster Aircraft Co	Jupiter	Winner of Sassoon Cup.
Atlas	Armstrong, Whitworth Aircraft Co.	Jaguar	Army cooperation.
Chamois	Short Bros	Jupiter	Do.
Horsley	Handley Page (Ltd.)	Two Jupiter	Night bomber.
Aviemore	A. V. Roe & Co	Two Condor	Day bomber.
Goring	Gloster Aircraft Co	Jupiter	Do.
Hendon	Hawker Engineering Co	Condor	Do.
Sidestrand	Boulton & Paul	Two Jupiter	Do.
Fairey IIIF	Fairey Aviation Co	Napier Lion	General purpose.
Hound	De Havilland Aircraft Co	do	Day bomber.
Valiant	Vickers (Ltd.)	Jupiter	General purpose.
Wapiti	Westland Aircraft Works	do	Do.
Bulldog	Bristol Aeroplane Co	do	Day and night fighter.
Hamlet	Handley Page (Ltd.)	Two Lynx	Civil air transport.
Pterodactyl	Westland Aircraft Works	Cherub	Aerodynamic research.

In some respects the list is disappointing, in that no new single-seater fighter is represented, although it is generally known that some particularly interesting single-seater fighters of high performance have been produced in the last year and are now under test. The main interest is, therefore, confined to some of the general purpose and day bombers which have recently been undergoing tests at the Royal Air Force experimental station at Martlesham Heath, and in certain cases are shortly to be in the hands of squadrons for prolonged service trials. Undoubtedly one of the machines which will at once attract attention is the new all-metal day bomber of Boulton & Paul, named the *Sidestrand*. This is well worth attention and shows distinct originality in many respects, while the excellence of the forward view secured by the use of twin wing engines suggests that the design has distinct applications for civil work in connection with air survey. The Fairey *111–F*, although it appears as a machine about which few details can be given as to past performance, actually comes to the display as a thoroughly proved proposition and with a successful team flight from Cairo to Cape Town and back behind it, besides work in India. The *Hound*, the latest production of the De Havilland Aircraft Co., originally put forward as a general-purpose machine, is now classified as a day bomber, and, if report speaks true, has an exceptionally high performance, turn of speed, and climb. The *Goring*, the day bomber of the Gloster Aircraft Co., is noticeable for its clean lines. The *Atlas* Army Cooperation machine of the Armstrong, Whitworth Aircraft Co. is another machine which is not strictly new, as a certain number are already scheduled for service use, while the *Horsley* is, of course, largely in use in the service, but is in especial prominence just now, owing to its being able to carry as a long-distance, record-breaking machine a greater load of petrol than any other single-engined aircraft in the world. The Vickers *Valiant* is an excellent general-purpose machine, a classification which has to cover a large number of functions, including the carrying of a somewhat diversified collection of spares if necessary; the Bristol *Bulldog* is a new day and night fighter produced by the designer of the famous war-time Bristol fighter; and the Short *Chamois* is an all-metal machine embodying a distinctive monocoque form of fuselage in duralumin.

The descriptions which follow are necessarily incomplete owing to limitations imposed by air-ministry regulations, and the line drawings must not be taken as side elevations made from a general arrangement drawing. They may not, therefore, show in complete perspective some of the smaller points, but they do show the main fuselage lines, and thus enable the general appearance of the machine to be appreciated at a glance.

"SIDESTRAND"

This machine, an all-metal twin-engined day bomber of intermediate range, is the product of Messrs. Boulton & Paul, of Norwich, and embodies a number of exclusive constructional features associated with the all-metal work of Mr. J. D. North, their chief designer. It is probably from that point of view one of the most interesting machines in the display, and, although no performance figures can be ascertained, it is believed to be one of the fastest machines of this class yet produced, and this quality is combined with an exceptionally high ceiling.

Notable advantages are gained by the use of twin engines, for they leave the whole of the forward part of the fuselage free for the pilot, gunner, and bombing officer, who thus have an unobstructed view forward and also for 90° on each side of the center line, while the pilot is assisted in maintaining a steady bombing course at the critical moments. As will be seen from the line sketch and as is more noticeable when the aircraft is actually seen, the fuselage is particularly shapely and clean in every respect, while, seen head on, the reduction of frontal area secured is equally notable. The engine nacelles for the two Bristol Jupiter radial engines are set low down on the lower wings of the biplane and the exposed engine structure is reduced to a minimum. The landing wheels are set wide, and there is no obstruction at all underneath the fuselage, in the body of which it is clear is the container for the bombs, so that these do not create head resistance. There is a rear cockpit for a gunner, and the tunnel for firing a gun underneath the tail seems to have been very neatly designed so as to offer the minimum disturbance to the air flow while affording a wide range of fire.

There are two bays beyond the engine mounting to each wing, the ailerons are balanced, and also the elevators and rudder. There is a slight forward stagger and a dihedral on top and bottom wings. The pilot is set up well above the forward cockpit in order to improve his view, and the machine is a three-seater. It shows distinct originality in many respects, and suggests that great care has been taken in detail design to obviate any excrescences likely to mar the clean lines.

FAIREY "111–F"

The Fairey machine is a two-seater general purpose aircraft of mixed wood and metal construction, but it is also made entirely of metal, and is noticeable for the clean lines and extreme care taken to reduce head resistance, a characteristic seen in all the latest machines made by the Fairey Aviation Co. of Hayes. It is fitted with a Napier Lion engine, and it will be noted that the three blocks are completely cowled in to form a particularly smooth entrance to the air, while the fuselage lines also indicate the attention that has been paid to reduce to a minimum any disturbance of the general air flow. It is a two-bay biplane with the rear portion of the center section cut away to improve the pilot's view, and there is ample accommodation behind for the observer and his gear. The distinctive variable camber gear associated with this firm is incorporated.

DE HAVILLAND "HOUND"

The *Hound* is the latest machine made by the De Havilland Aircraft Co., and may be said to mark the reentry into the military market of a firm which has in recent years devoted itself with outstanding success to the development of civil aviation requirements. The *Hound* bears unmistakable evidence of the well-known De Havilland practice, and is of mixed wood and metal con-

structor. Originally put forward as a general purpose machine, it was found to possess such notable qualities in speed, climb, and load capacity that it has now been transferred to the day bombing class, where it is stated to be among the fastest machines in the world.

The clean and easy lines of the body are apparent from the sketch, and combined with performance is a definite simplicity of constructional design so as to make for ease of maintenance in the field. It is a two-bay biplane with a slight dihedral on top and bottom wings and ailerons on the bottom wings only embodying the De Havilland differential control gear. The engine is a geared Napier Lion and the center block is faired into the fuselage, the fairing being carried back to the pilot's cockpit; the side blocks are not faired in and the whole cowling is designed for ease of removal and replacement. The radiator is part of the sloping underside of the cowling and is shuttered to give temperature control. The observer's cockpit is immediately behind the pilot and barely interrupts the clean line of the top of the fuselage. There is a gravity tank in the center section, but the main tanks are apparently contained in the fuselage itself between the fireproof bulkhead and the pilot's cockpit. The general cleanness of the design is also apparent in the tail assembly. The airscrew is noticeable for its size and coarse pitch, and this is associated with the new geared Napier Lion engine of higher horsepower, about which particulars are not available for publication at present.

VICKERS "VALIANT"

The Vickers *Valiant* is a general purpose two-seater biplane, produced by Messrs. Vickers at their Weybridge works, and has been especially designed to meet a number of particular requirements among which photography, bombing, fighting, and the carrying of a certain amount of spares may be included. It is a single-bay biplane fitted with a Bristol Jupiter engine, and is of all-metal construction. Wing tanks are sunk flush with the surface of the top wings, and the center section is cut away at the trailing edge to give the pilot a wide and clear view. The observer's cockpit is situated immediately behind the pilot, and the fairing at the back of the pilot's head serves also as a protection to the observer against the full force of the wind stream. The whole machine is very cleanly designed from the point of view of head resistance, and the tail unit is also noticeably free from external bracing. The tail skid is particularly interesting, as the skid is attached from a trailing triangular framing strong but light, a short rod direct from the skid to the shock-absorbing gear taking the load. A relatively wide track undercarriage embodies the well-known Vickers oleo form of landing gear. The machine suggests speed, combined with ample room for its various jobs. The engine is neatly inclosed with the exception of the heads, in the rear of which are streamline cowlings.

GLOSTER "GORING"

The Gloster *Goring* is a day bomber made by the Gloster Aircraft Co., of Cheltenham, whose series of single-seater fighters is very well known. It is fitted with a Bristol Jupiter engine, and the machine is again a notable instance of care in design to reduce head resistance. The *Goring* is a biplane with single bays and outward sloping struts to overhung top wings, in which are housed two large fuel tanks flush with the surface. Ailerons are fitted only on the top wings, which are set up on pylon struts to improve the pilot's view forward. The lower wings are attached to short sloping stub wing roots, and to these the wide track undercarriage is attached. Considerable care has been taken

to stream line air-screw boss and engine into a clean entrance shape, and only the heads of the cylinders of the Jupiter are exposed. The tail plane assembly is notably clean and the observer's cockpit is well arranged on the fuselage line.

AVRO "AVA"

Strictly speaking, the *Ava* coastal defense and torpedo carrier, built by Messrs. A. V. Roe, of Manchester and Hamble, is not a new machine, as the first experimental aircraft of this type was shown at the display in 1926, but constructionally the machine to be seen this year is new and it is all metal.

It is one of the largest machines the Royal Air Force has possessed, and, it is believed, also one of the largest aircraft in the world. The machine is a biplane with a span of 97 feet, a length of 63 feet, and a height of 19 feet 3 inches. When loaded its weight is just under 10 tons, and it has two Rolls-Royce Condor engines, developing 1,350 horsepower for its power plant. The top speed of the machine is 110 miles an hour, and this is combined with an exceptionally low landing speed, as is evident when the machine is seen landing.

BRISTOL "BULLDOG"

The Bristol *Bulldog* is an all-metal single seater intended for reconnaissance, and is produced by the Bristol Aeroplane Co., with their well-known Bristol Jupiter radial air-cooled engine as the power plant. A feature of the design is the way in which the radial engine has been stream lined into the fuselage to give a clean and easy entrance to the air, and it will be noticed that the usual bluff nose associated with radials has been eliminated. Practically only the engine heads project, and these are to some extent stream lined at the cylinder portion. The tail unit, again, is remarkably free from all external bracings or control wires, and the whole machine is representative of the best class of British aircraft practice. The rocker arm gear of the cylinder heads, it will be noticed, is inclosed to improve still further the general air flow, and the aileron control by a double wire to a sprocket housed in the lower wing is another interesting feature.

"SHORT CHAMOIS"

The *Short Chamois* has been designed by Short Bros., of Rochester, as a two-seater machine for use for corps or army cooperation and is fitted with a Jupiter engine. It naturally follows the particular form of all metal duralumin construction identified with this firm, and is a development from the earlier *Springbok*. The whole wing structure, however, has been redesigned and a new high-lift aerofoil adopted. The lower planes are smaller than the top planes, and a single pair of outward sloping struts are used on each side. This has the effect of improving the view downward, and ailerons are fitted only on the top plane, further improving the clean appearance generally of the wing structure. The center section is set just above the fuselage and is now fitted with a hole completely faired in so as to disturb as little as possible the air flow over the center of the wing.

WESTLAND "WAPITI"

The *Wapiti* is the production of the Westland Aircraft Works, Yeovil, Somerset, and is one of the general-purpose two-seaters fitted with a Bristol Jupiter engine. It is of wooden construction and is a two-bay biplane with wing tanks. The forward part of the fuselage is made up of a metal covering. The

pilot is placed just behind the trailing edge of the center section, with the observer's cockpit immediately in rear. As a general-purpose machine the *Wapiti* is designed to carry considerable, and possibly awkward shaped, loads, while being available for bombing and photographic work as well as general observation duties.

HANDLEY PAGE

The *Hinaidi* is a twin-engined night bomber, constructed by Handley Page (Ltd.), and is a development of the *Hyderabad*, the chief alteration being the substitution of geared Bristol Jupiter engines for the Napier Lion 450-horsepower power units.

This is a civil air transport machine which appeared at the review given to the delegates to the imperial conference last year, when it was fitted with three Bristol Lucifer engines. Since then it has been modified to take two Armstrong Siddeley Lynx engines of higher horsepower. It is fitted with slotted wings and has a commodious cabin which can be used for mail work or for passengers.

"PTERODACTYL"

This was seen at the last display and is commonly known as Captain Hill's tailless aeroplane. It is a most interesting departure from conventional design and demonstrates an extraordinary amount of control at low speeds by floating about in the air and sinking down almost to the ground very much like a bat.

C. POLITICAL

1. Foreign policies and relations.

(A) GENERAL AIMS AND IMPORTANT POLICIES OR DOCTRINES

Trade is the central fact of the British Empire. Great Britain is a highly industrialized nation, dependent upon foreign and overseas markets, not only for foodstuffs, but for raw material, which fact gives the color to British foreign policy. In the last analysis British foreign policy is dictated by the necessities of expanding and protecting her interests abroad, of maintaining the internal tranquility of the empire, and the peace of the world in her own commercial and political interests. To protect her trade Great Britain has defeated the Spaniards, the Dutch, the French, and the Germans. Should any other great nation seriously menace her trade Great Britain would prepare to fight, for there is only six weeks' food supply for the British nation in the British Isles, and the nation which tampers with her markets, threatens her trading interests, or menaces her trade routes is threatening her very life. The foreign policy of the British Government may be said to be the defense of British interests, sovereign, commercial, economic, financial, no matter where nor by what power they are menaced. Beyond this Great Britain has no settled policy. She conducts what policy she has upon the principle that specific cases demand specific solutions when they have arisen, not before.

Changes of government in Great Britain have, as a rule, little effect on foreign policy, for there is a tradition established definitely during the latter years of the nineteenth century of the essential continuity of British foreign policy. The general idea at the root of this accepted convention is that whatever the sympathies or the antipathies of any section of the British people may be the first care of every British Government in the changing complexities of international affairs is the defense of essential British interests. British foreign policy is, in fact, the maintenance of her maritime strength and thereby of her trade and security.

(B) RELATIONS TO THE LEAGUE OF NATIONS

In the League of Nations Great Britain easily secured a dominating influence. The British Empire is represented on the council, while in the assembly are representatives of the Commonwealth of Australia, the Dominion of Canada, New Zealand, the Union of South Africa, the Irish Free State, and India. This membership provides a compact bloc very useful in any international deliberative body. There are, moreover, satellite States upon which Great Britain can bring irresistible diplomatic pressure. In the council she is assured of a veto power over all actions. It might be stated that the machinery of the League of Nations is an almost perfect instrument for the use of British diplomacy. Great Britain's attitude toward the league has been bland and patronizing. The league has never prevented her from carrying out her own policies and it has never refused to indorse her accomplished feats. A considerable body of British public opinion favors the league as an alternative to war, which is becoming increasingly perilous to Great Britain, with submarines undermining her naval supremacy and airplanes putting an end to her isolation.

(C) GENERAL INTERNATIONAL POLITICAL SITUATION

Great Britain can never pursue a policy of isolation. She may minimize her commitments but she can not obliterate them. She may withdraw here and there, but she is bound to be on the alert to detect infringements of her rights or threats to her interests. A policy of British isolation would be disastrous.

Actual reconstruction in Europe is not political but economic and financial. All European governments are at present playing what might be called "prestige politics," seeking for unexpensive achievements abroad in order to achieve domestic political prestige, while a few of them are displaying clear ideas as to future policies or permanent associations.

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Of all the great powers which survived the war, Britain faces the most difficult situation.

In their present mood the British are not more anxious than the American for continental commitments. In Europe the British see Germany slowly but steadily gaining ground. The German commercial fleet is becoming the chief rival of the British. At the same time Germany is steadily making cartels and combinations with continental countries which must eventually include British interests and invade British markets. In the present Europe Italy would obviously like to have a hard and fast alliance with the British. But such an alliance would have for Great Britain manifest perils, for Italy under Mussolini is seeking not the preservation of existing Europe but the transformation of the Italian situation by both political and territorial expansion. Against the Russians and the Turks, Italy can be useful to Britain, but the British have no desire to be dragged into a new Balkan tangle in support of Italy's Albanian purposes. In the meantime nothing like the solidarity of the pre-war period has been established between France and Great Britain. France has gone on her way creating on the Continent a series of alliances which, while they contribute to her present security and European influence, raise grave problems. At the moment no direct clash of interests separates the British and the French. The nearest thing to a disagreement existing is the divergence of views over the evacuation of the Rhineland. Britain would like to bring allied occupation to a speedy end, both as a matter of policy and as a detail of European readjustment. France, on the other hand, stands upon the letter of the treaty of Versailles, which permits occupation until 1935. The British are urging the reduction of the army of occupation as the best present compromise between French and German views. In China as in Turkey, France has on the whole followed policies very different from the British. Long before the Lausanne treaty was signed France made peace with Turkey in the Syrian dispute. To-day France has refused to follow the British lead in taking any extreme steps against the Chinese.

In Europe, too, France and Britain do not see eye to eye in many directions. The French naturally resent a growing association between Britain and Italy. To the French mind the recent Italian coup in Albania had at least a measure of British approval, while Italian support of Britain in the Far East appears to the French as proof of Premier Mussolini's desire to promote Anglo-Italian association. The ever increasing threat to Britain coming from Moscow has served to modify British views in regard to Poland, whose proximity to Russia and whose importance as a barrier to Russian western thrusts have begun to appeal to the British. It is against Russia and

not against Germany that the British would like to use Poland. But Poland can not be weakened on the German side without being compromised in the face of Russia. Thus projects to weaken Poland to placate Germany are not encouraged by the British. As far as Germany is concerned Britain still inclines to support the Germans against the French in the matter of evacuation, but, on the other hand, finds her sympathy cooled by the fact that the German nationalists are both determined to force a revision of the eastern frontier at the expense of Poland and resolved to keep the way open to later Russo-German alliance. In reality there has been going on between Russia and Great Britain for years something little short of war. What czarist Russia was never able to accomplish bolshevist Russia is rapidly bringing to pass, namely, the destruction of British prestige in Asia. First by supporting Kemal Pasha and the Turkish nationalists, now by backing the Chinese nationalists, Russia has inflicted severe wounds upon Britain.

There is a belief in Great Britain that those in power at Moscow have already openly declared their hostility to the British Empire, that in the Far East the Russians have exploited an awakening Chinese nationalism to foment anti-British riots and a boycott of British trade, which has reached the most serious proportions. It is claimed that in Malaya, India, Egypt, all the British colonies and protectorates in Africa, Russian agents have been busily endeavoring to spread sedition and that in Great Britain itself the Russians have sought to use present industrial difficulties as a means for undermining British national stability. They believe that if affairs are allowed to drift without intervention of some kind in a short time all Asia will be anti-British, beginning with Russia and stretching through Turkey, Persia, and Afghanistan to China and India.

Among the insistent problems of the immediate future, the adjustment of relations between Asia and Europe is one of the most urgent and important. The peace of the world in this and the next generation will depend on whether the West and Asia will be able to come to terms over the control of the Pacific, the future of Australasia as an exclusively white man's world, and the relations of China and other Asiatic peoples with the West. In the adjustment of these vast and fateful problems Russia, and probably Russia alone, holds the balance. Is she to be on the side of the West or against the West, or is she to serve as a bridge between West and East? The decision lies not with Russia but primarily with western diplomatists. Will they decide for a smaller but homogeneous Europe, or will they strive to keep intact the greater Europe even at the expense of a temporary heterogeneity?

That is a great question to which Great Britain is at present engaged in formulating a reply.

ITALY

A. AERONAUTICAL

1. Information concerning 1927 Schneider race at Venice.

Although without any definite information that there will be American participation in the Schneider cup race this year, the following notes are compiled. Last minute inquiries and arrangements will be difficult to obtain or impossible to make.

Hotel and other accommodations and facilities are rapidly being reserved. The prices are stiffening and will probably continue to increase as the time for the races approaches.

The Italian Government will, upon request, assign barracks for enlisted personnel, mechanics, and such. They will desire to know the number and time of arrival.

Officers, pilots, and others must provide their own quarters, preferably, of course, on the Lido.

Hangar space and use of shops are at disposal of competing teams. Slip ways (concrete; length, 90 feet; width, 17 feet; depth at submerged end, 7 feet) are fitted with electric drums and cables.

Small metal tubing may be purchased and dural sheets may be obtained, but information of material available at this time is meager.

Mooring buoys will be provided.

Fire and ambulance boats will be provided.

First-aid stations are handy and in Venice are a municipal and two military hospitals.

Each plane will be furnished one motor boat and one rowboat. If more are desired, they may be rented.

Aerological conditions likely to be encountered in July, August, and September have already been announced. It is well that racers train at Venice in order to get acclimated before date of race.

Gasoline and other fuels and oils may be brought or locally purchased. They will be stored near by in an ex-bomb proof. The gas is distributed by the "Bergomi" safety system.

All equipment may be entered free of duty, but complete lists of cases and contents should be available if required by customs and in order to check the exportation of material after the race. No special port of entry or routing is required. It is suggested that ships unload at Venice to avoid delay in reshipment by rail. The declaration of the society organizing the races will be accepted in lieu of cash or bond deposit for customs.

Press information, in touch with developments of planes for the Schneider cup races, has it that the Italians have increased the horsepower of last year's engines to 1,000. They have also set the pontoons slightly further forward and changed their angle of attack a small amount. The control surfaces have been considerably enlarged. It is understood that last year when Italian planes were up to speed the control stick had to be shoved forward to extreme limit in order to maintain level flight. The pilot who came in third claims he deliberately throttled down because at full out his plane was out of control.

The Italians have heard that the English planes carry as high as 1,200 horsepower in at least one of their planes and in trials they have made 262.5 miles per hour in a closed circuit.

This year's racing team (Italian) is the same as last year's with two new substitutes. One of these is considered their "dark horse" and best bet because his performance lately has been phenominally smooth and perfect.

NOTE.—Since the above was written one of Italy's racing pilots has been killed. It will be remembered that the Schneider race last year was held in Norfolk and won by Italy.—Ed.

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2. *Description of Dirigible N4 ("Norge" type) building at Ciampino.*

Envelope.—The envelope, made for the most part of specially prepared rubber cloth, has been shaped for least resistance. It is subdivided into 10 sealed compartments made of interposed diaphragms, the same method as used in the other types of dirigles built by the Costruzioni Aeronautiche. The chain system is used for suspension. This is a specialty of the Italian dirigibles.

The transverse section of the envelope is maintained as much as possible in balance with the circular section by means of two upper sets of chains which, together with the outside suspension, sustain the underbody.

Feeding the ballonet is done by a conduit which has its opening in the nose cap. Discharge air valves connect the ballonet with the outside air.

Girders.—The girders running from bow to stern are triangular semirigids. The longitudinal and the transverse elements are composed of small steel tubes normally used in the construction of Italian dirigibles, and the nonrigid diagonals are made of steel cables.

The girder joints are flexible and are composed of high-tension forged nickeled drawn steel. This type of joint to a certain extent deforms the entire system, but allows for the dismounting of the various elements and their rapid substitution. The forward part of

the girder supports the nose cap, and aft there is a special structure chained to the girder which supports the directional controls.

The nose cap consists of a rigid bow in the form of a cup into which the beam ends are set. The anchor hook for the mooring mast is attached to the beam's point. The nose cap runs well aft, reinforced by small steel tubing connected up with rings, also of steel tubing. The after section of the nose cap sheathes into the envelope so that the rigid element fits gradually into the nonrigid elements of the ship structure.

The ribs of the nose cap are riveted to a ring which forms the forward intake air valve. This valve is manipulated from the command cabin.

The control surfaces are composed of two horizontal keels with mobile fins for elevation by a vertical upper fixed keel and by a lower vertical keel with a mobile direction rudder.

The fixed surface fins are held in place by steel cables and wires. The lower vertical fin is attached to the lower edge of the beam by means of steel cables and wires.

The forward cabin (for command and passengers) is an integral part of the understructure and is directly attached to the upper joints of the beam.

The profile of the cabin is designed so that its lines are in harmony with the beam section.

The cabin is 39 feet long. The forward commander's compartment contains the maneuvring controls, navigating instruments and accessories, radio cabin, ladders to the inside of the structure, etc. The central section can be used for crew and passengers. The extreme stern serves as a lounging cabin. The structure and reinforcements of the cabin are of steel tubing. The envelope of the cabin is made of canvas. Some of the windows are stationary and some are removable.

The bottom of the cabin is protected by a heavy pneumatic pudding which acts as a buffer when landing, and as a float on the water.

Motor cabins.—The make-up of each of the three motor cabins is arranged to offer the least wind resistance. The grouping of the motors and accessories and machinist's cabins are completely masked by the form and construction of the cabins themselves. Each cabin is composed of two parts and serves two distinct purposes. The upper is simply a protection for the motors and houses the machinist. It is made of duralumin with openings for air. The under section, however, is heavily constructed and reinforced. The first part is completely dismountable so as to uncover the motors. The second part is mounted on two longitudinal beams and protected with thick duralumin plates.

The outside covering of the lower section of the cabin is made of thin duralumin.

The cabin is hung on steel cables running from its reinforced metal structure to the joints of the longitudinal beam.

The motor group is set on the aft section of the reinforced structure. The automatic starter and the exhaust discharge as well as the oil reservoir and other motor accessories are in this cabin.

The water radiator is set in the bow of the cabin upon the reinforced structure.

In the two forward motor cabins the propellers are directly connected to the shaft. The after engine is capable of reversal.

Capacity	cubic feet	653,400
Length	feet	341
Horsepower		720
Maximum speed	Miles per hour	68
Cruising speed	do	56
Consuming per cruising speed	pounds	287

NOTE.—It will be remembered that it was the "Norge" which flew over the North Pole. A ship of the "Norge" type was recently delivered to the Japanese Navy.—Ed.

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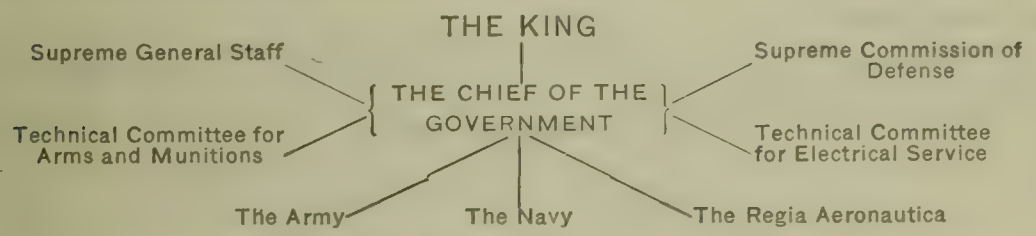
3. Aeronautical organization.

The following study attempts to outline the organization in force at this date known as the Regia Aeronautica. It supercedes all previous reports along this line.

To begin with, it is well to have in mind the present organization of the Italian armed forces, army, navy, and Regia Aeronautica. The following graphic will give a clear idea of the chain of authority and coordination that exists at present:



The supreme general staff is an advisory technical organization to the chief of the Government. The chief of this organization is the technical adviser to the chief of the Government in connection with war plans and the coordination of land, sea, and air defense of the nation. This officer, assisted by a small staff, constitutes in reality a war plans section. He has no direct authority over the armed forces. He is entitled, however, to correspond with the chiefs of staff of the single forces, through their respective ministers, for coordination.

The supreme commission of defense coordinates the study and the solution of interministerial questions pertaining to national defense and the instructions necessary for coordinating all national activities in time of war. The deliberative committee is under the chief of the Government with the Ministers of Foreign Affairs, Interior, War, Navy, Air, Finance, National Economy and Communications as members. Other ministers may be called as members when necessary. The advisory bodies are —

(*a*) The army council.

(*b*) The committee of admirals

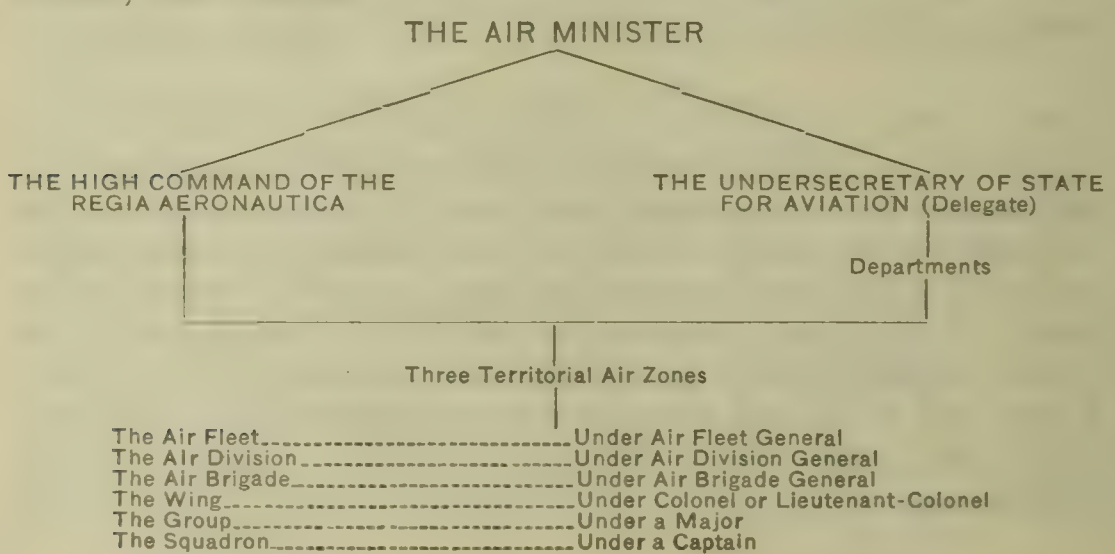
(*c*) The committee for national civil mobilization

The technical committee for arms and munitions coordinates the studies and experiments of common interest to the three forces concerning mobilization and standardization of arms and munitions. It consists of 12 officers of the army, navy, and air force. It keeps in close liaison with the committee for civil mobilization and with the chemical warfare service.

The technical committee for military electrical services and communications coordinates studies and experiments of interest to the three forces with respect to mobilization, manufacture, and standardization of electrical equipment. It is composed of three members from each of the three forces.

Each of the three ministries, army, navy, and air, include a minister, an undersecretary of state, and chief of staff. Undersecretary of state and chief of staff are on a parity basis, each in his proper field of authority, and come directly under the minister. However, for the present, the Undersecretary of State is delegated to act for and on behalf of the minister, so that the chief of staff is practically under him, for the reason that he legally represents the minister himself.

Let us now examine the Regia Aeronautica. It is organized as follows, and includes:


THE AIR MINISTER
THE HIGH COMMAND OF THE REGIA AERONAUTICA
THE UNDERSECRETARY OF STATE FOR AVIATION (Delegate)
Departments
Three Territorial Air Zones
The Air Fleet—Under Air Fleet General
The Air Division—Under Air Division General
The Air Brigade—Under Air Brigade General
The Wing—Under Colonel or Lieutenant-Colonel
The Group—Under a Major
The Squadron—Under a Captain

(*a*) For the present, no air fleet, air division, or air brigade has been organized.

(*b*) Above table clearly shows that the units (fleet, division, brigades, etc.) come under the high command of the Regia Aeronautica and under the undersecretary of state jointly, through the territorial air zones.

(*c*) The undersecretary of state has technical and administrative functions exclusively. He supervises military and civil aviation.

(*d*) The high command of the Regia Aeronautica has strictly military functions, such as discipline, organization, and employment. It transmits to the undersecretary of state its needs of material and personnel, both in peace and war. It indicates the characteristics of aircraft in view of their employment in war. It inspects units and schools so far as practical training is concerned; does not, however, consider technical services nor administration.

(*e*) Territorial air zones have authority over units, schools, airdromes, industries, depots, stores, etc. They are the proper channel between the ministry and the units.

The high command of the Regia Aeronautica includes—

(*a*) The office of the chief of general staff.

(*b*) The office of the underchief (deputy chief) of general staff.

(*c*) The technical aeronautical committee.

(*a*) The office of the chief of general staff includes:

(i) An office of the secretary, under a colonel or lieutenant colonel of the aeronautical arm.

(ii) *First section:* Operations, under a general or colonel of the aeronautical arm, including three offices:

Operations.

Training.

Military intelligence.

(iii) *Second section:* Organization and mobilization, under a general or colonel of the aeronautical arm, including two offices:

Mobilization.

Organization (planning and coordination).

(iiii) An office of technical services.

(*b*) The underchief of staff collaborates with the chief of staff in the performance of his duties. His office has no subdivisions.

(*c*) The technical aeronautical committee is a technical and experimental organization charged with studies and experiments of aeronautical equipment and material. It expresses its opinion in regard to adoption or modification of aeronautical equipment, aircraft and ground organization. It includes—

(i) The director of studies and tests.

(ii) The director general of construction and supplies.

(iii) The director general of services, material, airports.

(iiii) The chief of the first section of the office of the chief of general staff.

(iiiii) The chief of the second section of the office of the chief of general staff.

The following are the nine departments under the undersecretary of state for aviation:

(*a*) The office of laws and decrees, attached to the office of the minister.

(*b*) The general directing office of military personnel and schools.

(*c*) The general directing office of civilian personnel and general affairs.

(*d*) The general directing office of construction and supplies (contracts, construction, test and acceptance, supply of all aeronautical material, mobile and immobile, technical supervision in aeronautical factories, etc.)

(*e*) The general directing office of studies and tests.

(*f*) The general directing office of service of material and of airdomes.

(*g*) The inspectorate of military commissariat, administration, and accounts.

(*h*) The Sanitary Office.

(*i*) The office of civil aviation and aerial traffic.

(*d*, *e*, and *f*) above have taken place of the general directing office of aeronautical engineering, which has been suppressed.

Let us now examine, in brief, how the high command and the undersecretary of state for aviation work together.

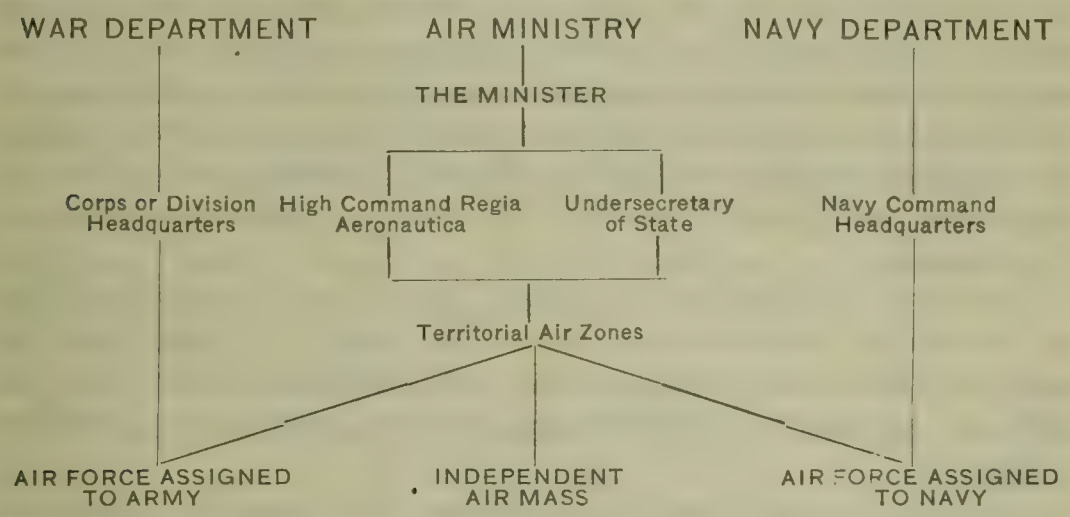
The chief of staff expressing his desire for new equipment or aircraft, in view of intended war operations, the technical aeronautical committee will examine the technical possibilities and lay out a general project. The undersecretary of state has to approve it and will send it to the general directing office of studies and tests, which will work it out in detail and then transmit it to the general directing office for construction and supplies, for execution. The work is then entrusted to a private firm.

Another case: The chief of staff asks a certain number of units in view of future war operations. The undersecretary of state will approve or disapprove his request, depending upon the budgetary means available and other considerations.

In case of disagreements between the chief of staff and undersecretary of state for air, the air minister is the supreme authority to decide, assisted by supreme general staff and by supreme commission of defence.

The Italian units are subdivided, as well known, into—
Independent air mass (directly under air ministry).
Mass assigned to the army.
Mass assigned to the navy.
Colonial air forces.

Let us now examine the chain of command of units assigned to army and navy and relationship between air force, army, and navy:



As shown in this graph the air force assigned to the army and that assigned to the navy come under the air ministry, through chain shown above, and under the army and navy respectively. The air ministry takes care of administration, discipline, supplies, material, etc., while army and navy are entrusted with employment, training, operations, and with all disciplinary questions arising therefrom.

COORDINATION OF THE ARMY AND NAVY MASS WITH THE AIR CORPS COMMAND

Let us now examine how the air force assigned to the army functions with respect to army and air ministry. The following considerations also apply to the air force assigned to the navy, with respect to navy and air ministry; the organization being absolutely identical.

The squadrons assigned to the army (20 observation squadrons at present) are organized into groups, which in turn are organized into wings. Consequently, the army corps commander, or division commander, always corresponds with the wing commander whenever he needs a squadron for operations with his army corps or division.

The brigade commander has no authority to correspond with the wing commander. Whenever he needs a squadron or a section (each observation squadron is organized into three sections) he

will notify the division commander who in turn will inform the wing commander.

When request for one or more sections, or one or more squadrons, is made, the wing commander issues orders to the group commanders and selects such squadrons as are most suitably located for the operation planned. The wing commander has a considerable number of squadrons under him from which to select. Pilots of the machines assigned to the army are officers and noncommissioned officer of the Regia Aeronautica. Observers, on the contrary, are army officers, infantry, artillery, engineers, etc., according to whether the operation planned is reconnaissance, artillery réglage, etc., the proper observers will be selected (infantry or artillery or engineers) and detailed to fly. The pilot is under the orders of the observer.

In as much as there are at present 30 divisions in Italy and only 20 observation squdrons assigned to the army, it is clear that the same squadron will perform duty with different divisions and for different purposes, reconnaissance, liaison, photograph, artillery réglage, etc.

According to program of expansion, however, the number of observation squadrons assigned to the army will be 37 by January, 1931.

The wing commander corresponds, on the other hand, with the territorial air zone commander for supplies, technical matters, armament, equipment etc. The wing commander is responsible for proper maintenance and efficiency of the squadron under him.

Should the army corps or division commander desire that pursuit or bombardment units of the independent air mass collaborate with his ground troops in action, he will inform the chief of staff of the army of his needs. The chief of staff of the army will correspond with the chief of staff of the Regia Aeronautica, who will issue orders to the units of the independent air mass through the commander of the territorial air zone, the wing commander, and group commanders.

Analogously the chief of staff of the Regia Aeronautica may want some units of those assigned to the army. In this case he corresponds with the chief of staff of the army and, after reaching an agreement, he will notify the commander of the territorial air zone to issue orders to the wing commanders. The chief of staff of the army, on the other hand, will notify the army corps or division commander that the number of squadrons available for him is being temporarily reduced.

However, the wing commander will make arrangements in this case so that not all the squadrons under him are transferred to the independent air mass, but only such percentage as to insure proper functioning of the services for the army.

Finally, the army corps or division commander is authorized to correspond with the territorial air zone commander (and vice versa) directly for all questions pertinent to the proper functioning of the service, such as efficiency, equipment, etc.

The ground organization—that is, airdromes, fields, supplies, fuel, etc.—is exclusively under the territorial air zone commander. The army corps or division commander has absolutely no authority nor ingerence over this part of the service.

The navy has at present a number of observation squadrons and a number of pursuit squadrons for protection of the observation aircraft. All these squadrons are based on shore, and the authority of Navy and Regia Aeronautica over same is identical to that of air force assigned to the army. In addition, the navy has a number of seaplanes, folding wings, on board battleships, and the dirigible wing. Also for these the chain of command is as in the case of squadrons based on shore.

Colonial units are exclusively under the governors of the colonies. The ministry of colonies purchases aircraft and material from the air ministry, so that it becomes the property of the administration of the colony. However, the personnel of these units is furnished by the air ministry (pilots, riggers, mechanics, and specialized personnel in particular), but such personnel is paid by the administration of the colony in the same measure as air force personnel in Italy, plus certain allowances. The colonial troops furnish observers, non-specialized personnel, administrative and sanitary personnel, etc., for the proper maintenance and upkeep of the air units, together with clothing, rations, fuel, and equipment.

To properly weight the advantages or disadvantages of such a system as above described one must take into account the time, the place, relative development, geographical location, special features encountered in the national defense, psychology of administrators and administrated finances, and various other features.

From what can be observed the above system appears to work as well in Italy as any other might. There are, of course, in effect, three air services proper, plus the colonial service. There exists a certain amount of jealousy between governmental departments which tends to complicate and involve in red tape any necessary cooperation.

Whether or not the system is economical is open to question, not to be determined except by careful study and analysis. There is a very large overhead necessary in setting up a separate air ministry as against many economies claimed for one air service. In addition, both the army and navy have to maintain, in reality, an aeronautical arm and to provide and train observers for air craft assigned to them.

It will be noticed that the method of organization tends to make duties of the personnel assigned to the army and navy little more than those of mechanics and pilots.

As the present large number of young pilots increase in age there does not appear to be adequate opportunity for advancement.

While a separate air ministry may meet the needs of Italy in her peculiar geographical situation, the laborious and cumbersome system of control adopted in an attempt to provide for army and navy aviation needs would probably lead to an ultimate lack of coordination under pressure of an intensive campaign. From observation of the functioning of the system of separate air service one is forced to the conclusion that not only geographical considerations but political system and our native psychology would act against the success of a similar system in the organized defenses of the United States.

NOTE.—See March Bulletin for further review of Italian aeronautics.—Ed.

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4. Inspection of aircraft establishments in northern Italy.

The following aircraft establishments in northern Italy were recently inspected:

(*a*) Aeroplani Caproni, Taliedo (near Milan).

(*b*) Societa Italiana Ernesto Breda, Sesto San Giovanni (near Milan).

(*c*) Isotta Fraschini, Milan.

(*d*) Nicola Romeo & Co., Milan.

(*e*) Aeronautica Macchi, Varese.

(*f*) Societa Idrovolanti Alta Italia (Savoia), Sesto Calende.

(*g*) Fabrica Italiana Automobili Torino, Turin.

(*h*) Aeronautica Italia (formerly Ansaldo), Turin.

(*i*) Reale Politecnico, Turin.

(A) AEROPLANI CAPRONI

TALIEDO (NEAR MILAN)

Gianni and Frederico Caproni have built 60 airplanes of the Ca. 73 night-bomber type and its modification. The Taliedo factory is now very busy on a new order of 56 airplanes of this type with 2 Isotta Fraschini 500 horsepower "Asso" engines instead of Lorraines. Some of the new airplanes are for bombing, and some will be used as troop carriers in the colonies.

They are also building a few Ca. 73 biplanes of the civil type. These last will be arranged for 10 passengers whereas the troop carriers will hold 20. Both the troop carriers and the passenger airplanes have a new fuselage much higher than the first civil model.

The construction of the Ca. 73 is entirely of wood; the fuselage longerons are of spruce and the transverse frames of poplar. The box-wing spars have spruce tops and bottoms and sides of three-ply brought from Finland.

The wing ribs have spruce cap strips and diagonal bracing of pine. The ailerons are of wood, but steel tubing is used for the elevators and rudder.

The bombing type carries the fuel tanks in the fuselage, but the troop and passenger carriers have two triangular tanks of rustproof steel fitted in the top wings, the wings being suitably strengthened by steel braces.

The new airplanes have only two landing wheels instead of four. It was noticed that the rubber shock absorbers are placed inside the lower wings.

The Ca. 73 military type can carry a great variety of bombs, the total load of which varies between 1,764 to 2,204 pounds. The radius of action is 620 miles.

The required load factor for the Ca. 73 is 6, but the prototype was sand tested to 8, at which load the stand supports broke, but not the airplane wings. One out of every 10 airplanes in a production order is sand tested to 3 and the deflections checked. On account of the negative stagger of the Ca. 73 wings, the 15° sand test is less severe than the normal test.

There is a new large bomber under construction at the Vizzola factory. This airplane, to be known as C. 79, has spars built up of steel W's forming the flanges and connected by duralumin webs of Zeppelin airship section. The fuselage is of steel tubing. This airplane, which will have four 500-horsepower "Asso" engines, will carry 4,409 pounds of bombs. The other characteristics are as follows:

Wing area	square feet	2,475
Weight empty	pounds	14,330
Useful load	do	9,920
Total weight	do	24,250
Speed	miles per hour	137
Ceiling	feet	16,400

It is believed that Caproni has on the drafting board a much larger type of bomber to be known as the Ca. 90, which it is thought will carry about 8,818 pounds of bombs.

(B) SOCIETA ITALIANA ERNESTO BREDA

SESTO SAN GIOVANNI (NEAR MILAN)

The Breda Co. are building 12 type 7 observation monoplanes for an experimental squadron. The prototype of this model was fitted

with a Lorraine-Dietrich engine, but the ones now under construction have the Isotta-Fraschini "Asso."

The fuselage is of chrome nickel steel. The longerons are angle irons to which are riveted pierced stiffeneers, the whole forming a triangle. The fuselage struts of U-section are closely spaced and the bays are cross braced with wires and stranded cable. The whole assembly has a very heavy appearance, but the weight of the structure complete with the axleless landing gear, but of course without covering or equipment, is stated to be only 441 pounds.

In the latest model there are two triangular radiators placed behind the engine at the sides. These radiators, being pivoted at the bottom, can be swung inside the fuselage when necessary. Below the engine there is a third permanently exposed radiator without shutters.

There are three machine guns, one Vickers gun forward and two Lewis guns for the observer—one on top of the fuselage, and the other firing through the floor.

The Breda Co. are building for the Royal Aeronautical School at Caserta 30 A–4 two-seated training biplanes with 180-horsepower Hispano-Suiza engines. This biplane has interchangeable top and bottom wings and a patented system for putting the pupil's controls out of action. The A–4 is also made as a seaplane and with skids for use in winter.

The Breda Co. also manufactures several other types of school airplanes, notably the A–10 with a 250 horsepower Isotta-Fraschini.

The large Breda bomber with two or four engines is considered by the Italian Government as a failure as it has insufficient speed and climb with full load. The Breda Co. now proposes to transform the two-engine bomber (fig. 12) into a commercial airplane driven by three Romeo "Jupiter" engines (with tractor screws) and carrying 11 passengers in the cabin. A special point about the large bomber is the small balancing plane in front of the leading edge of each top wing. When the aileron is moved down, wire connections across the wing cause the balancing plane to move up and vice versa.

(C) ISOTTA-FRASCHINI

MILAN

At the Isotta-Fraschini factory there are about 2,000 men employed, of whom the majority are working on aircraft engines, as the company turns out only 300 motor cars per year.

Up to the present time, 200 "Asso" engines have been built and the Isotta-Fraschini have orders for 700 more.

Among the special features of the "Asso" engine are the magnesium crank case and cam shaft covers.

The engine has four valves and two spark plugs per cylinder, and four Zenith carburetors. The two Bosch magnetos used on the earlier models have been replaced by Marelli magnetos. The steel cylinders are surrounded by welded steel jackets.

The workmanship and equipment of automatic machinery at the Isotta-Fraschini factory are of the highest possible order and are probably equaled on the Continent only by the Hispano-Suiza Co.

Very complete series of tests and checks are used. For instance, every connecting rod bears the Brinnell test mark and number and is stamped with its own weight.

One out of every 25 engines is tested for 100 hours over 10 days in periods of 10 hours per day. During each period the engine is run one hour at full power and nine hours at nine-tenths power.

The factory is building modified "Asso" engines for the Italian Navy for use in submarine chasers. In these engines the carburetors are placed between the banks instead of outside and are fitted with a reversing gear.

The factory is building no more of the 400-horsepower Lorraine engines, but a few were seen under repair. The Italian-built Lorraine was modified from the French type in several points, notably the shape of the cam shaft cover and the placing of the accessories. This engine was never considered entirely satisfactory in Italy and production of the 450 horsepower W type was never started.

Professor Matteucci is now building a very remarkable reduction gear for the "Asso" engine following successful tests on a Spa 200-horsepower engine. This gear has a number of advantages over existing types, including elasticity of drive, absorption of the vibration period of the engine (if any), and silence.

Attached to the end of the crank shaft is a large split ring. Projecting from this ring is an arrangement of springs to strengthen the contact with an inner ring. The power is transmitted through 32 rollers in a bronze cage, the latter being solidly connected to the propeller. The rings have channels which permit the oil to be squeezed out and affording a positive metal to metal contact. The ratio of reduction is 2.15 to 1, so that at a crank-shaft speed of 2,150 revolutions per minute the propeller rotates at 1,000 revolutions per minute.

(D) NICOLA ROMERO & CO.

MILAN

About 2,000 workmen are employed by the Romeo company, but only about 700 are used in motor car and aviation engine work, the remainder being occupied in the foundry and making parts for steam engines, railroad cars, etc.

The Romeo company have delivered 125 "Jupiter" engines of the order calling for a total of 150. The Romeo "Jupiter" engines are made under license from the Gnome-Rhone Co., which holds all the rights for the Bristol "Jupiter" engine on the continent with the exception of Scandinavia. A French Claudel triple carburetor is used but the magneto is an Italian Marelli.

The model manufactured is type 9–AB developing 400 horsepower at 1,700 revolutions per minute. This engine corresponds to the Bristol "Jupiter" IV. The Romeo "Jupiter" is used on the Ansaldo AC–3 (similar to the French Dewoitine D–9) and the Fokker C.5 airplanes made by the Romeo company at Naples. After very extensive tuning up the first Romeo engine was brought out in April, 1926, and no further order beyond the original 150 has yet been received. The Romeo company is studying various types of aviation engines of its own design, both air and water cooled, but they are as yet in a very preliminary state of development.

The factory has three test stands and every engine is tested for three hours, including two hours at nine-tenths and two half-hour periods at full power. One out of every 10 is tested for 5 hours, 4 hours at nine-tenths power and 1 hour at full power. One out of every 25 is tested for 100 hours over a period of 10 days.

(E) AERONAUTICA MACCHI

VARESE

The Macchi works now have about 600 men working on a contract for 50 Savoia S–59 bis observation flying boats with Isotta-Fraschini "Asso" engines.

Of airplanes of their own design, the Macchi company are completing a contract for 12 M–24 torpedo carriers. Altogether 24 of this type have been built for Italy and 6 for Spain. The latest examples are fitted with two "Asso" instead of 2,400 horsepower Lorraine engines.

The Macchi M–24 has five seats for the crew of four: the gunner in the nose can also use the wireless telegraph cockpit to the right of and behind the gunner's cockpit. The two pilots sit side by side. There is a rear cockpit for the second gunner. The 1,433-pound torpedo is carried under the right lower wing next to the hull and no special arrangements are made to compensate for this weight which is only slightly off center. Bomb racks are provided so that an equivalent weight in bombs can be carried if desired.

The M–41 pursuit seaplane is being built by the Macchi company on an experimental order from the Government. This seaplane, superseding the M–34 (which never progressed beyond the drafting

board), has a 400-horsepower Fiat A–20 engine, is equipped for photography, and will have a duration of three and five-tenths hours. Ailerons are fitted to the lower wing only. While the entire structure is of wood, with the exception of steel tube elevators and steel spars in the tail plane, the Macchi company intend very soon to go into all-metal wing construction.

Other new Macchi designs include the M–37 and M–38, two and three seat observation hydromonoplanes, and the M–40 shipboard seaplane. None of these has been built, but the designs of the M–40 have been submitted to the air ministry. It will have a central float and two wing floats, like the Vought, and will be used for catapulating off ships. The engine will be a Fiat A–20.

The wing structure of the M–30 seaplane, which won the 1926 Schneider cup, is quite normal, consisting of two spruce box spars and spruce ribs spaced about 9 inches apart, with circular and oval lightening holes. The greater part of the wing is covered both top and bottom with brass radiators screwed to the ribs. The tanks of these radiators form the nose and trailing edge of the wing. The exposed portion of the wing is covered with ply wood.

The elevators are of steel tubing, and it is understood that the stabilizer has steel spars and wooden ribs.

(F) SOCIETA IDROVOLANTI ALTA ITALIA (SAVOIA)

SESTO CALENDE

The Savoia has 750 workmen and is quite busy on an order for 50 S–59 bis observation seaplanes with "Asso" engines.

The S–59 bis is a direct development of the S–16 ter with which Commander de Pinedo made the Sesto Calende-Melbourne-Tokio-Rome flight. It is the same as the S–59 except for the power plant, the earlier model having a 450-horsepower Lorraine.

The structure of the hull is of ash and silver spruce. The plywood covering is reinforced below the water line with cedar wood planking. The wing tip floats are of three-ply birch. The wings are of wood but the ailerons, rudder, and elevators are of welded steel tubes. The wing struts are of spruce.

In addition to the 50 S–59 bis seaplanes being made at the Macchi plant, 50 further examples are under construction at the O.A.N.T. factory near Trieste.

The Savoia company have constructed 12 of the S–55 torpedo seaplane, a variant of which was used by Commander de Pinedo in his flight to South America and the United States.

The S–55 having been designed primarily as a torpedo carrier, was fitted with lateral hulls so as to leave a clear central space for the

torpedo. The Savoia engineer, however, prefers for most purposes a central float and has accordingly designed a new type of seaplane known as S–63 with a central hull but otherwise very similar to the S–55. The seaplane which has three spars is divided into 18 watertight compartments and has a displacement of 918 cubic feet, assuring flotation in almost all circumstances. The wing area has been increased by 140 square feet but the weight of the complete seaplane is less than that of the S–55 owing to the amalgamation of the two hulls into one. The cubical capacity of the hull is about 848 cubic feet and therefore the S–63 can readily be adopted for commercial purposes as it permits a cabin 9.8 feet square and 6.6 feet high. The short hull is connected to the tail by an arrangement of booms recalling the Navy Curtiss N.C. design of 1918. This permits a great saving of weight and facilitates taking off under certain conditions. It may be noted that the wing tips are 7.9 feet and the tail plane 6.6 feet above the water.

There is one gunner's cockpit in the nose and another in the tail of the hull. The pilots' cockpit is on the left side of the hull instead of in the leading edge of the wing as in the S–55.

Although the useful load is normally 4,850 pounds, this may be increased to 6,613 pounds.

At the air station of Santa Anna on Lake Maggiore is a S–55 pursuit seaplane which has been equipped with the Fiat A–20, replacing the 300-horsepower Hispano Suiza.

The hull is covered with birch three-ply, 0.118 inch thick on the sides and from 0.177 to 0.236 inch thick on the bottom. The bottom is also covered forward of the single step with Honduras cedar planking copper riveted to the plywood. Between the plywood and planking are layers of cloth impregnated with a waterproof preparation of tar and gutta-percha.

The S–62 is the latest of the series of Savoia observation seaplanes which include the S–16 ter, S–57, and S–59. The S–62 was designed especially to take the high powered engines of 500 to 600 horsepower (such as the "Asso" and the Fiat A.22) and the standard power plant is the "Asso."

The load factor for both wings and hull is 10, this figure for a hull being unusually high.

The armament consists of two or four guns mounted on two ring mounts, there being an extra cockpit behind the wings not found on the earlier models. A limited weight in bombs may also be carried.

The angle of attack of the stabilizer may be varied in flight.

(G) FABRICA ITALIANA AUTOMOBILI TORINO

TURIN

Airplane factory: The Fiat aviation factory at Montefiore, which employs 600 workmen, is finishing the final order for 29 BR–1 day bombers.

Several of the airplanes in this order have the Fiat A–25 engine instead of the old A–14. The preceding BR–1 order was for 31 airplanes and altogether 200 have been built.

The first example of the new R–22 observation biplane is undergoing the official tests at Montecelio, and a second example has been finished and is at the factory. The others are in the shops in various states of completion, and Fiat has so far received orders for 24 from the Government.

The general construction of the R–22 greatly resembles that of the CR–20 pursuit type and is entirely of metal with the exception of its covering.

The wing spars are of steel and consist of two channel sections riveted together by hand at top and bottom, thus forming a box. The sides of these spars are pierced by triangular lightening holes. At the points of greatest stress strengthening strips are riveted inside the angles.

The front spar is placed very far forward in order to take care of possible reversal of loading. The space between the front and rear spars is, therefore, greater than usual, and there are a number of steel tube distance pieces. Square section duralumin tubes are used for the ribs, the size of the bottom tubes being larger than the top. The top and bottom cap strips are joined by a system of diagonal square section tubes and at the junctions of the diagonal tubes with the cap strips there are fittings fastened to the ribs by tubular rivets.

The fuselage has steel tubular longerons and struts. The fittings at the junction of the struts to the longerons are pinned and tin soldered, there being no oxyacetylene welding.

As an example of the care used, it may be pointed out that to the longerons are soldered duralumin strips of U section filled with wood to prevent the possibility of the farbric covering chafing at the angles of the fuselage. Following the custom of the designer, all fittings are very heavy and generally cut out of solid blocks of steel. This is a very expensive but strong method.

Behind the Fiat A–22 550-horsepower engine is the very large tank having a capacity of 227 gallons. As this tank is arranged to be dropped, the landing gear is of the axleless type and there is no brac-

ing across the bottom of the bay in which the tank is situated. The bracing of this bay is accomplished by struts forming triangles outside the bay in the roots of the lower wings, the outer apices of the triangles joining fore-and-aft members in the wing to which the struts of the very wide landing gear are attached.

Not content with having a slip tank the Government has insisted upon tank protection which adds 143 pounds to the weight and reduces the duration by over one hour. This protection is also applied to the gravity tank in the top wing.

The gun ring for the observer is very wide, overhanging the fuselage sides and permitting fire directly downward. The two fixed guns forward, on top of the fuselage, are at present Darne, but this make is considered unsatisfactory for synchronized firing and Vickers guns will be substituted. The two rear guns are Lewis.

The A–22 Fiat engine is entirely overhung and, as in the BR–1, is placed slightly off axis to overcome torque. The lower half of the engine cowling is in one piece and when it is removed the engine is completely accessible, a considerable improvement over the CR–20.

The engine cowling behind the nose radiator is hollowed out, fitting closely against the engine blocks and exposing the entire exhaust pipes to facilitate cooling. For the same purpose the spark plugs have holes cut out around them and are likewise exposed to the air. A questionable point is the placing of the carburetor air intake inside the cowling, but no danger of fire was conceded. It may be noted that the carburetors have a very small amount of gas in them.

The aluminum sheet fuselage covering is continued to the back seat, the rear part of the fuselage covering being of fabric.

The stabilizer is adjustable in flight, but this feature is not considered necessary as the weights are well concentrated and the gasoline tank at about the center of gravity.

The price of each R–22 airplane without engine or military equipment is $9,000.

Although the R–22 is designed primarily for observation work it carries 992 pounds of bombs. The total useful load of 1,984 pounds can be increased to 2,645 pounds.

Trans-Atlantic seaplane: The chief engineer of Fiat has designed a huge monoplane flying boat for trans-Atlantic flights.

This monoplane will carry 30 passengers and a crew of 6. One example is to be built as the Government has ordered it, at a cost of $1,250,000, without engines.

The power plant will consist of six Fiat A–22 engines placed in the wings in three groups, the engines of each group being in tandem, driving tractor and pusher screws.

The tanks are placed between the engines so as to leave the hull entirely free. The cabin for the 30 passengers is 36 feet long and

13 feet wide. The span of the great flying boat will be 134 feet, length 100 feet, and wing chord 21 feet.

The Fiat engineer is also designing a huge bomber with three A–25 900-horsepower engines. The Government requires this bomber to carry 4,410 pounds of bombs for a distance of 1,864 miles, at a height of 16,400 feet, and it remains to be seen whether these figures can be realized.

The Fiat company is supplying a few new types to foreign countries, including the CR–20 to Spain. It may be observed that in this order the Fiat company insists upon fitting the A–20 engine, as the Hispano-Suiza engine, which the Spanish Government desired, was not considered as suitable.

It may be mentioned that one of the Italian air-force officers at the Montefiore aviation field has invented a field starter which is a great improvement over the De Haviland type, in that the fitting of the starter attachment to the propeller hub by adjustment of a biped arrangement to obtain the exact height is avoided.

The apparatus consists of a flexible cable which is turned at 3,000 revolutions per minute by a small Fiat engine mounted on a chassis. At the otuer end of the cable, where it is attached to the propeller hub, is a 10 to 1 reduction gear which causes the propeller to be turned over at 300 revolutions per minute. The whole secret of the invention lies in turning the cable at a very high speed and having a gear reduction at the outer end, as a flexible cable turning at slow speed would be unworkable.

Aviation engine factory: Fiat aviation engines are made in a special factory where the main work consists of a contract for 400 of the A–20 type. Of this contact, about 50 engines have been completed.

The cylinders of the A–20 are of steel, and there are welded steel water jacklets. The two double carburetors placed inside the V are heated by hot water. The singe air intake could, if necessary, be prolonged upward by a pipe to a point outside the engine cowling, but in the majroity of cases this is not done.

There are four valves per cylinder operated by two cam shafts on each bank. One cam shaft is driven by means of a shaft running up from the end of the crank shaft. The cam shaft drives a second cam shaft through gears. The pistons are of aluminum alloy.

The entire crank shaft is carried by bearings, the supports of which are hung from the upper half of the crank case, the lower half being merely a pan. The material of the crank case and cam shaft covers is lighter than the usual aluminum alloy.

The A–22 is very similar in design to the A–20, but the A–25 is of much more massive construction. Both the A–20 and

A-22 have master connecting rods, but in the A-25 one of the rods of each pair is of the forked split type. The A-25, which develops 980 horsepower at 2,000 revolutions per minute, has three double carburetors instead of two. None of the types has a reduction gear.

As yet the A-22 and A-25 engines have not been produced in quantity, only experimental orders having been completed.

AS-2 engine: The AS-2 engine used on the winning Macchi seaplane in the 1926 Schneider cup is probably the lightest in the world, delivering a maximum of 882 horsepower at 2,500 revolutions per minute for a weight of 908.3 pounds, complete with water and oil (1.03 pounds/HP.). The general design of the AS-2 is almost identical with that of the A-22. The cylinders have been increased in size and all moving parts very much lightened. The valve timing is very special, there being a large overlap and an early inlet; 80 designs of cam shafts were tried before the final one was decided upon. The pistons are of magnesium, and three double carburetors are used instead of two. The water-jacket space has been reduced and the corrugations eliminated.

It appears that the first five AS-2 engines tested were rejected by the Government. The Fiat company desired only a five-minute run at full power, but the Government insisted upon a test of 20 minutes at full power and of 35 minutes at nine-tenths power.

Of the three AS-2 engines used two were designed for higher speed than the third, which equipped Bacula's airplane; thus it was hoped that if the first two engines gave out before the end of the race the third would be able to finish.

The Fiat company is now building in strict secrecy a new engine called the AS-3 to be fitted to the Italian contenders in the Schneider cup at Venice in September, 1927.

CHARACTERISTICS OF THE FIAT AS-2 ENGINE

Type of engine, 60° V, water cooled, no reduction gear.		
Number of cylinders		12
International power at 2,300 revolutions per minute in standard air	horsepower	810
Normal power at 2,350 revolutions per minute in standard air	do	830
Maximum power at 2,500 revolutions per minute in standard air	do	882
Bore	inches	5.5
Stroke	do	6.7
Length	feet	5.2
Width	do	2.4
Height	do	3.1
Weight of engine dry	pounds	875.2
Weight of engine with water and oil	do	908.3
Volume of each cylinder	cubic inches	159.7
Compression ratio		6

(H) AERONAUTICA ITALIA (FORMERLY ANSALDO)

TURIN

The Ansaldo factory has been acquired by the Fiat company and the name changed to Aeronautica Italia.

The factory has built 110 AC–2 pursuit monoplanes. This airplane is a replica of the French Dewoitine D–1 and is equipped with the 300-horsepower Hispano-Suiza engine built by the Italia company.

In June the factory is completing the present order of 150 AC–3 airplanes. This model is a duplication of the Dewoitine D–9 and is equipped with the "Jupiter" engine. The first 90 AC–3's had Gnome-Rhone "Jupiters," but the power plants of the last 60 have been built by Romeo at Milan.

At the time of my visit there were 26 fuselages almost finished and about 40 complete examples being held pending delivery to the air force.

The AC–fuselage is slightly lower than the AC–2, increasing the distance between the top of the fuselage and the wings and improving visibility.

As fast as the AC–2 airplanes are returned to the factory for overhauling the Hispano-Suiza engines are replaced by the Fiat A–20 engine, and the airplane nomenclature is changed to AC–4. The AC–2 has two Lamblin radiators below the fuselage, which was made quite wide in order to receive the 90° Hispano engine. The adaptation to the Fiat A–20 therefore is not good, as the fuselage is uselessly wide for the compact 60° engine. Also the rather flat nose cowling is very ugly and has a high resistance, and it would certainly be better to replace the Lamblin radiators by nose radiators, as the resistance of the fuselage would not be increased.

After completion of the AC–3 contract it is probable the factory will be used for a production order of Fiat CR–20 pursuit biplanes.

The factory has shipped to Rumania and Estonia a number of Fiat CR–1 pursuit airplanes.

The Ansaldo A–400 observation biplane with Lorraine 400 horsepower engine proved a failure and was succeeded by a wood-built observation monoplane known as the A–115. This model has in turn been superseded by a similar design known as the A–120 but built of duralumin.

The new model did not prove very satisfactory when tested at Montecelio, as the wings had insufficient torsional resistance. Following the absorption of the Ansaldo company by Fiat, the chief engineer of the latter company, who has general supervision of the Aeronautica Italia production, has redesigned the A–120. The main

members of the structure are now of steel instead of duralumin and the monoplane is at Montecelio for further tests.

The Aeronautica Italia has the Italian rights for the French S. E. M. A. P. E. tank protection. The protection consists of the following layers, counting from the inside toward the outside: Felt, net, rubber, net, rubber, cloth, wire mesh. The unfortunate characteristic of this protection is its great weight of 2 pounds per square foot. This protection is insisted upon by the Italian Government and is fitted on all modern airplanes. Some study, however, has been given to a quick fuel-dumping system with a long pipe as used in the three-engine Junkers G–31, so that the fuel will not spray over the bottom of the fuselage.

The duralumin used in the AC airplanes comes in part from France and partly from the duralumin factory at Leghorn. The shapes for the ribs, for example, are pressed and drawn in the factory and not bought ready-made as is the case for Fiat.

(I) REALE POLITECNICO

TURIN

The building containing the wind tunnel of the Reale Politecnico has been considerably lengthened at the intake end, giving much more space for air circulation.

Professor Panetti has made some experiments with a whirling arm of only about 6 feet radius and rotating at 1,350 revolutions per minute. These experiments were made in connection with the determination of the pressures on various streamlined shapes and forms used in ballistics. The measurements were made in an effort to discover at what point the laws of ballistics overcame those of aerodynamics. So far, no practical results have been reached, as the speed has not been high enough, and a new whirling arm of much greater radius is being built.

In the power-plant section tests are being made with various forms of silencers mounted on the Lorraine 400-horsepower engine and with a special form of carburetor for fire prevention attached to a Hispano-Suiza 300-horsepower engine.

JAPAN

A. NAVAL

1. Alteration to the "Yubari."

On account of excessive smoke interference on the bridge and in the forward fire-control station, the smoke stack of the *Yubari* will be

heightened several feet. This work is being undertaken at Sasebo at the present time.

NOTE.—The "Yubari" is a special type light cruiser of 3,100 tons, completed in 1923. She mounts six 5.5-inch guns and has a speed of 33 knots.—Ed.

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2. *Visit of Japanese First Fleet to Yokohama.*

A part of the first fleet, with the commander in chief, Admiral Kanji Kato, arrived in Yokohama harbor recently for a stay of five days. The following vessels were present:

Battleships: *Matsu*, *Nagato*, *Hyuga*, and *Ise*. Cruiser: *Tatsuta*. Destroyers: Four of *Hishi* class (twenty-seventh division), four of *Kiri* class (twenty-first division), high-speed mine sweepers. Submarines: Four of *Ro-60* class. Auxiliaries: *Jingei*, submarine tender; *Mamiya*, supply ship. Airplane carrier: *Hosho*.

The following were noted.

"NAGATO"

Guns—Secondary battery.—Seven 5.5 guns on each side are mounted on the gun deck. These guns have very little freeboard, and any kind of spray or heavy weather would greatly diminish their efficiency. Three guns are mounted on each side of main deck in the superstructure and are well placed as regards spray and heavy weather.

Three-inch antiaircraft.—Four guns are mounted on the main deck forward, there being two on each side of the superstructure. Three are mounted on a platform at the base of the mainmast, one to starboard, one to port, and one abaft the mainmast. A total of seven 3-inch antiaircraft guns. These guns were without gun covers and it was noted that they have no director control instruments.

Fire-control stations.—The foremast is a massive structure apparently containing all fire-control stations except No. 1 main battery control in the fire-control tower and secondary main battery control stations in the turrets.

The foremast comprises eight platforms or levels. These platforms, numbered from bottom up, are apparently as follows:

No. 1.—Torpedo control. This platform extends forward over the conning tower, this part constituting a navigating platform.

No. 2.—Searchlights, three on each side.

No. 3.—Searchlights, one on each side, and small range finders about 10 feet), one on each side.

No. 4.—Secondary battery directors and control.

No. 5.—One large range finder (about 24 feet) mounted on track which runs around the mast. The signal yards protect from this platform.

No. 6.—Main battery control station with directorscopes and target bearing transmitters. (This platform glassed in.)

No. 7.—Main battery spotting station. (This platform glassed in.)

No. 8.—Cylindrical structure, antiaircraft control station.

Torpedo nets.—Equipped with torpedo net shelves and steps for booms, but no nets or booms rigged.

Paravanes.—Two under bridge.

Range finders.—Five large range finders (25 to 30 feet). One mounted on track on foremast and one in armored casing on top of each turret. Three small range finders (about 10 feet). One mounted on navigating platform over conning tower. Two mounted on foremast.

Searchlights.—Ten (about 36-inch). Eight searchlights on foremast and two on mainmast.

Aircraft.—One Hiro reconnaissance, type 14, seaplane. This plane is carried on the main deck just abaft and to starboard of the mainmast. It was slung and secured from a boom on the mainmast. The *Nagato* had no airplane launching gear of any description.

Flag signal stations.—One signal bridge under foremast and one small signal bridge on mainmast.

NOTE.—The *Nagato* was burning coal. Briquettes were stored on deck.

"MUTSU" (SAME AS "NAGATO" EXCEPT—)

Guns.—Only four 3-inch antiaircraft, all forward.

Torpedo nets.—Not equipped for.

"HYUGA"

Guns—Secondary battery.—Nine guns on each side are mounted on gun deck. Same comments as to spray and weather as for *Nagato*. One gun on each side in gun shield, main deck.

Three-inch antiaircraft.—Four, mounted on the main deck forward, two on each side of superstructure.

Searchlights.—Ten (about 36-inch), two on foremast, four on large searchlight platform abaft No. 2 stack, and four on mainmast.

Aircraft.—None. No launching gear.

Fire-control stations.—Same as *Nagato*, except no large range finder on track on foremast.

Torpedo nets.—Same as *Nagato*.

Paravanes.—Same as *Nagato*.

Flag signal stations.—Same as *Nagato*.

Range finders.—Four large range finders (25 to 30 feet), one on navigating platform forward of foremast; one in armored conning

on top of each high turret Nos. 2, 3, and 5; two small range finders (about 10 feet) on foremast.

"ISE" (SAME AS "HYUGA" EXCEPT—)

Guns—3-inch antiaircraft.—Two only, both mounted aft each side of mainmast.

Range finders.—Five large range finders (25 to 30 feet), one on navigating platform, one in armored casing on top high turrets Nos. 2, 3, and 5, and one on No. 4 (low turret). Two small range finders (about 10 feet) on foremast.

Searchlights.—Ten (about 36-inch); six on foremast, 4 on mainmast. (No searchlight platform abaft No. 2 stack, as on *Hyuga.*)

DESTROYERS OF "HISHI" CLASS (850 TONS)

No mine or depth charge tracks aft. No paravanes or sweeping gear. Sketch of radio antenna attached. No antiaircraft guns.

DESTROYERS OF "KIRI" CLASS (665 TONS)

(High-speed mine sweepers)

Two mine tracks aft. No mines observed. Two depth-charge projectors, one on each side forward of mainmast, six depth charges in racks at mainmast, about same size as our service depth charges.

Two paravanes (about 8 feet long) slung from hinged davits which swing outboard for lowering or hoisting, and one kite, all abaft mainmast. Two steam towing machines, one on each side abaft mainmast for high-speed sweeping. Sketch of radio antenna attached. No antiaircraft guns.

"HOSHO," AIRPLANE CARRIER (9,500 TONS)

There were no planes on the flying deck, which had a rail rigged around its entire length.

"TATSUTA," LIGHT CRUISER (3,500 TONS)

Radiocompass abaft No. 3 stack. One small range finder (about 5 feet) on bridge.

SUBMARINES—"RO–60" CLASS (998 TONS)

Anchors.—Two housing, patent. Nash fish-listening gear.

Radio.—One telescopic mast formed; four-wire, flat; antenna running to telescoping signal mast amidships and then to deck aft.

Net cutter.—None.

Clearing wires.—Yes.

Loop antenna.—Yes; stopped along clearing wires.

Guns.—One about 3 inches forward of bridge, not antiaircraft.

Diving rudders.—None visible above water forward. Just abaft the anchors and just forward of stem a white line is painted for about 15 inches along the hull, parallel to the water line, which presumably marks the position of the diving rudders under the water.

Gun elevations.—While passing close aboard the *Ise*, that ship was engaged in main battery gun drill. All turrets were trained abeam and turret guns were elevated. It was carefully noted that the turret roofs, which slope forward, were cut away at the gun ports, permitting a high-angle elevation. The *Ise's* main battery guns were elevated between 20 and 25 degrees at the maximum elevation observed.

NOTE.—The "Nagato" and "Mutsu" are Japan's two most powerful ships, mounting eight 16-inch guns. The "Hyuga" and the "Ise" are contemporaries of our "New Mexico" class and mount twelve 14-inch guns.—Ed.

B. AERONAUTICAL

1. Army air service equipment.

NUMBER OF PLANES IN POSSESSION OF THE ARMY

(*a*) Planes, without motors, with units in service or in reserve:	
Salmson 2A2	120
Nieuport 29C	70
Nieuport 120 horsepower Le Rhone	20
Hanriot No. 14	45
Hanriot No. 19	4
Farman 60	6
Breguet 19 BN2	2
Dornier	2
Mitsubishi No. 4 (500 horsepower Hispano-Suiza)	2
(*b*) In stock, without motors:	
Salmson 2A2	100
Nieuport 29C	250
Total	621

NOTE.—Nakajima Co. built 48 Nieuport 29C during the last fiscal year. The army will have 6 Mitsubishi No. 4 by the end of 1927.

NUMBER OF MOTORS IN POSSESSION OF THE ARMY

(*a*) With units, in service or in reserve:	
Salmson 230 horsepower	180
Le Rhone 120 horsepower	80
Le Rhone 80 horsepower	100
Hispano-Suiza 500 horsepower	3
Lorraine 400 horsepower	10
Lorraine 450 horsepower	2
Hispano-Suiza 500 horsepower	3

(*b*) Motors in stock:

Salmson 230 horsepower	150
Le Rhone 120 horsepower	10
Le Rhone 80 horsepower	60
Hispano-Suiza 300 horsepower	250
Total	935

NOTE.—It will be noted that the army has about 220 Salmson planes (observation) and 320 Nieuport 29C planes (pursuit), with extra motors. Both of these planes, especially the Salmson, are obsolescent.

2. Summary of Japanese aviation.

ORGANIZATION

On April 1, 1927, the new bureau of aeronautics began to function with the navy department.

The bureau is headed by a vice admiral and is divided into the following three sections: (1) Technical (rear admiral in charge); (2) general (captain in charge); (3) training (rear admiral in charge).

The bureau has jurisdiction over the stations, squadrons, and aircraft in the fleet.

The entire naval air force consists of 13½ squadrons and the following personnel: 204 officer pilots; 122 officer observers; 374 officers, nonflying; 356 enlisted pilots; 234 enlisted observers; 5,510 enlisted men, nonflying.

The squadrons are located at Kasumigaura, Oppama, Omura, Sasebo, and Hiro. These squadrons supply personnel and planes for ships carrying planes, including the experimental carrier *Hosho*. The organization of the new carrier *Akagi* is not known.

SHORE STATIONS

(1) Kasumigaura is the large training station for land and sea plane pilots and observers about 40 miles northeast of Tokyo. It is an excellent station; the buildings are nearly all permanent and it is a well-run station. There are approximately 150 officers and 1,800 enlisted men here, including students. There are 30 officers and 60 enlisted men taking flight training at one time and 5 officers and 150 enlisted men taking the engineering course. There are four squadrons, all used for training.

(2) Oppama is a large operating sea and land station near the Yokosuka Navy Yard. The buildings are old and full of excess and worthless material. It did not give the impression of efficiency which was noted at all other stations. There are about 80 officers and 850 enlisted men, divided into five squadrons.

This station furnishes personnel and planes for the *Hosho* and very probably for the other ships which carry planes.

(3) Omura is a small operating station in the western part of the island of Kyushu. All the main buildings are permanent and the station is extremely clean and shipshape. At present it is used only as a land-plane station, but could readily be used as a seaplane station too. Its location is excellent and it is believed that in the future it will be enlarged into a big station. There are 50 officers and 300 enlisted men at this station. These are divided into two squadrons.

(4) Sasebo is a seaplane station about 3 miles south of the Sasebo Navy Yard. The buildings are permanent and the station is clean and well administered. There are no facilities for land planes and the seaplane facilities are poor on account of high hills around the bay. There are about 50 officers and 400 enlisted men, divided into two squadrons.

(5) Hiro is a small seaplane station about 5 miles east of the Kure Navy Yard and is used only to test the products of the Hiro aircraft factory. It is not capable of much enlargement. There are two officers and 50 enlisted men here and they are considered half a squadron.

SHIPS CARRYING PLANES

(1) *Akagi*, recently commissioned, is to carry 66 planes.

(2) *Hosho*, experimental carrier, carries 14 planes. She is used during maneuvers as a seaplane tender. She has no airplane launching gear.

(3) The *Nagato* and *Mutsu* each carry one seaplane (Hiro reconnaissance type 14) and the *Hyuga* and *Ise* are not carrying planes. None of these ships have any airplane launching gear.

(4) *Wakamiya* and *Notoro*, tenders, each carry six seaplanes.

(5) *Furutaka*, cruiser, carries one seaplane and launching device.

It is believed that the later light cruisers other than the *Furutaka* carry seaplanes which must be lowered into the water for use. The old Hansa monoplane has been used aboard ship in the past, but this is being replaced by the Hiro reconnaissance, type 14.

PERSONNEL

The officers seem to be quite efficient. The higher ranking officers especially are kind and considerate and seem especially well selected to command. All officers are well educated, and a great many speak English. They all have the greatest respect for senior officers and are very punctilious about salutes and navy courtesy. They are interested in flying and seem very anxious to learn new things and espe-

cially how we do things. They are universally respected by their enlisted men. They keep their uniforms neat and clean which must be very difficult on their meager salaries. Custom requires that they keep solemn faces in public, but in their quarters and clubrooms they unbend and show that they are quite human and have a sense of humor. They are temperate in their habits, go to bed early, and are ready for work early in the morning.

Enlisted men, though coming from the lower classes, seem to be bright, intelligent men. They are very quick to learn and take a great interest in learning anything new. They take great pride in their work, and, like the officers, were delighted to explain their particular specialty. They are the healthiest looking lot of men ever seen, and they live on very poor pay and meager rations. Their clothes are always neat and clean. The greatest respect is accorded officers and a great amount of saluting is done. All men move on the double around the stations and always seem busy at something. They seem proud to be in aviation. They make very good mechanics, riggers, and special ratings.

The officers are better pilots than the enlisted men. All seaplane flying seen was perfectly normal. The planes were well handled and the only criticism that could be offered was that they do not come into the ramps with sufficient care. All pilots in landplanes seemed to make very slow, flat landings and leveled off very high. That is the only criticism of landplane flying. Even from disastrous results from motor failure in the air, it is believed that pilots become excited when their motor fails and consequently make a bad landing. Pilots seem to be rather cautious and consequently few serious accidents occur. In general, pilots are good, much better than it is generally believed.

Japanese people are not inventive or creative, and this applies to officers and enlisted men. They are very good at doing something that some one shows them or making something from a model supplied by some one else.

TRAINING

All pilot training, with the exception of F–5 pilots, is done at Kasumigaura. The course requires nine months, and two classes, overlapping, are in training at one time. In general, two enlisted men are trained for every one officer. The average number of students, pilots, officers, and enlisted men undergoing training at one time is 90, divided into two classes.

The class is divided into two parts and one half begins training in the Navy type seaplane and advance to reconnaissance flying in the Hansa type seaplane. The other half begins on Avro land planes

and advances to Mitsubishi No. 2 reconnaissance planes and later some few to Mitsubishi No. 1 fighters and Mitsubishi No. 4 torpedo planes.

During the entire course each pilot receives about 120 hours flying.

All flying is done in the morning beginning at 7.30 a. m. The afternoons are devoted to work on the planes and ground-school instruction for the pilots. This system enables the mechanics to keep the planes in excellent condition.

During the afternoon the student pilots and reconnaissance students are given instruction in the following subjects: Aerial gunnery, bombing, navigation, strategy, signals, radio (theoretical and practical), photography, engineering, rigging, instruments, and theory of flight.

The course is thorough and students should be well versed in aviation subjects.

Reconnaissance students receive the same ground-school instruction that pilots receive.

In addition a school is conducted in engineering. About 5 officers and 150 enlisted men attend this school. There is no flying in connection with this course. The students spend much time on practical work in well-equipped shops and come out of the school excellent mechanics or riggers.

Upon completion of the courses here the pilots are assigned to operating stations and continue in practice along a special line, depending on the kind of squadron. Pilots assigned to F–5 squadrons are taught to fly F–5's when they report to the squadron.

There is no competitive system of bombing and gunnery exercises in the squadrons. Training is conducted regularly and continuously in all squadrons.

AIRCRAFT

Reconnaissance (light bomber, observation, spotting, machine gun, photographic.—(*a*) Hiro reconnaissance, type 14, twin pontoon seaplane.) (Modified Fairey Pintail.) (Photograph attached.) This is an excellent biplane of modern construction, with a speed of 90 knots and cruising radius of 9 hours. It is equipped with radio, machine guns, and light bombing equipment. This plane uses the Lorraine Dietrich 450-horsepower engine of Japanese manufacture. This aircraft is the nearest to being a complete Japanese product of any in use. Two of these planes departed from Kasumigaura on April 29 on a 1,900-mile trip to the Kurile Island. This is the longest flight ever undertaken by the Japanese Navy and the first flight over these regions.

(*b*) Mitsubishi No. 2 landplane using the Hispano Suiza 300-horsepower of Japanese manufacture. A very good plane, but slightly short-cruising radius.

(*c*) Hansa, twin pontoon seaplane, monoplane, using 200-horsepower Hispano-Suiza geared engine, which gives very unsatisfactory service. This is the only plane being used aboard ships in the fleet.

Pursuit (machine guns only).—Mitsubishi No. 1 landplane using the 300-horsepower Hispano-Suiza engine. This is a very satisfactory plane of low speed, only 130 miles per hour. It resembles and has slightly better performance than the SE–5. This plane is not equipped for light bombing.

Scouting (heavy bombing, spotting, photographic, gunnery).—Japanese built boat type seaplane of standard F–5 type, using two Rolls-Royce Eagle 360-horsepower engines. This is a very satisfactory plane except that it is too slow for present needs. This plane has been modified by reducing wing spread and mounting two 400-horsepower Lorraine-Dietrich engines of Japanese manufacture and has not been tried out, but more speed and better performance is expected. There are only two squadrons of F–5's, one at Oppama and one at Sasebo. Every attempt has been made to find a more suitable plane for scouting, and the Dornier and Rorhbach planes have both been tried. Apparently they were not satisfactory. In the meantime very little construction work is being done on F–5's.

Experimental.—(*a*) The experimental F–5 noted above was observed at the factory.

(*b*) Rohrbach metal boat was observed at Hiro and it was stated that it was unsatisfactory.

(*c*) A heavy bomber, with fuselage about the size and shape of F–5, only rectangular in section, was observed at the Nakajima aircraft factory. This plane is to be mounted on twin pontoons and will be powered with two or three Jupiter 450-horsepower air-cooled engines. It was stated that it could carry useful load of 3,000 pounds a distance of 2,000 miles. The remark was made that it could carry 20 men to Manila.

Torpedo and heavy bomber.—Mitsubishi No. 4 landplane, using Napier Lion 450-horsepower engine, both manufactured by the Mitsubishi Internal Combustion Engine Co. at Nagoya. This is a very good plane for the purpose and seems to have no difficulty in carrying a 1,500-pound torpedo, but the radius of action is rather short, 2½ hours. This plane, as well as all Mitsubishi planes, has a neatness of design which characterizes it as a real airplane.

Training.—(*a*) Avro landplane using 80-horsepower Le Rhone rotary engine. This plane is to be converted to use the Benz 130-horsepower, 6-cylinder engine at an early date.

(*b*) Navy training plane, 1925 model, using 130-horsepower Benz engine and equipped with two pontoons or with wheels as desired. This plane is used almost entirely as a seaplane and is not satisfactory as a landplane. All primary seaplane training is done with this plane.

(*c*) In addition, the following services planes are used for advanced training: Reconnaissance: Mitsubishi No. 2 and Hansa. Torpedo and heavy bombing: Mitsubishi No. 4. Pursuit: Mitsubishi No. 1. Scouting, F–5: Pilots are trained by operating squadrons from new arrivals from the pilots' school.

Japanese-manufactured airplanes are good, proper tests are conducted on materials, and, generally speaking, they are reliable and excellent products.

Total aircraft in Japanese Navy at air stations (not all set up):

Hansa	59
F–5	15
Mitsubishi No. 1	43
Mitsubishi No. 2	30
Mitsubishi No. 4	38
Avro	114
Navy training	74
Hiro reconnaissance	16
Total	389

In storehouses and at factories and repair depots:

Hansa	33
F–5	8
Mitsubishi No. 1	68
Mitsubishi No. 2	42
Mitsubishi No. 4	38
Hiro reconnaissance	18
Experimental	2
Total	209
The *Akagi* is in commission and is supposed to carry 66 planes	66
Grand total	664

ENGINES

(1) Hispano-Suiza 300 horsepower used in Mitsubishi No. 1, Mitsubishi No. 2, and manufactured at the Mitsubishi Internal Combustion Engine Co., Nagoya.

(2) Hispano-Suiza 200-horsepower geared engine, manufactured by the Mitsubishi Internal Combustion Engine Co., and used in the Hansa seaplane.

(3) Hispano-Suiza 450 horsepower, manfuctured by the Mitsubishi Co. Experimental to date but will soon be used in Mitsubishi No. 4 plane and in a new fighting plane.

(4) Benz 130 horsepower, manufactured by the Hiro factory and the Tokyo Gas & Electric Co., Omori. This engine is used in the navy training plane, 1925 model, and will be used in the modified Avro.

(5) Le Rhone 80-horsepower rotary, manufactured by the Tokyo Gas & Electric Co. It is used in the Avro training landplane and is not satisfactory because it is not powerful enough and is so dirty.

(6) Lorraine Dietrich, 400 horsepower, manufactured by the Hiro factory and the Nakajima Engine Co. and is used on the modified F–5. This is a V-type eight-cylinder engine.

(7) Lorraine Dietrich, 450 horsepower, manufactured by the Hiro factory and the Nakajima Engine Co. and is used on the Hiro reconnaissance plane. It is a W type of 12 cylinders.

(8) Jupiter, 450 horsepower, air cooled, will be manufactured by the Nakajima Engine Co. in the near future.

(9) Napier Lion, 450 horsepower, manufactured by the Mitsubishi Co. and used in the Mitsubishi No. 4 torpedo and bombing plane.

All of the above engines are manufactured completely in Japan with the exception of the carburetors and magnetos, which are all purchased abroad.

The workmanship on the Japanese manufactured engines is excellent. Great care is taken in having things just right. Careful tests of materials are made and new materials are being investigated. It was stated at Hiro that the Japanese manufactured Lorraine Dietrich engines develop 20 to 30 more horsepower than the French-built engines. Japanese factories can supply the engine needs of the air services and with a very good product. No superchargers are in use and none are under process of development.

PROPELLERS

Propellers are all made by hand from mahogany imported from Mexico and South America and walnut imported from America. Apparently there is no Japanese wood that will stand up for propeller use. Only one attempt at manufacture of a steel alloy propeller was seen and that was unsuccessful, since the metal was not rigid eough. The workmanship on the wood propellers is good and excellent propellers are produced.

PONTOONS

Wood pontoons are carefully made but are extremely heavy. The general shape is similar to the British designs—flat nose and rectangular in section. At nearly all stations it was stated that the bottoms are broken continuously from hard landings.

Metal floats are used on the Hansa seaplanes with considerable success. These floats were manufactured by the Aichi Co.

INSTRUMENTS

All instruments are purchased abroad, mostly from France.

MANUFACTURING FACILITIES

Manufacturing facilities for engines and aircraft are good. The various factories turn out excellent products and provide an excellent nucleus for expansion of the industry. The factories in order of their merit are as follows: (1) Mitsubishi Internal Combustion Engine Co., (2) Hiro aircraft factory, (3) Nakajima engine factory, (4) Aichi Clock Co., (5) Nakajima aircraft factory, (6) Sasebo repair depot, (7) Kawasaki Dockyard Co., (8) Kawanishi Aircraft Co., and (9) Tokyo Gas & Electric Co.

MATERIALS

Practically all materials used in the manufacture of aircraft and engines is imported. Natural resources are such that metals for engine manufacture could be produced at home, but these sources are being conserved at present. There is only one wood in Japan that could be used in place of spruce, and it is in very limited quantities. It will therefore be necessary to import mahogany, spruce, and ash for aircraft at all times.

AIRCRAFT DESIGN

The present Japanese aircraft follow German and British design, with the British design predominating. All the aircraft in use in the navy are pure copies or slight modifications of the above aircraft. There is really not one type of plane in the navy that is pure Japanese design, although it is claimed that Mitsubishi and Hiro Reconnaissance are Japanese designs. These are so similar to British types that it is easy to see where the designers got their ideas.

All planes at present use wood longerons. Mitsubishi and Hiro planes have tubular-steel engine sections. The only attempts at all-metal construction have resulted in failure.

MACHINE SHOP AND MOTOR OVERHAUL

The machine shops at the air stations are small, but are well equipped and have skilled personnel to operate the machines. The machines are nearly all of American manufacture. In conjunction with the machine shop at each station there is a metal shop for minor metal repair that is adequate for each station.

Motor overhaul is all done by enlisted men at the respective stations. All routine overhaul is done on the stations. It is believed that a few engines are returned to the factories for overhaul.

AIRCRAFT OVERHAUL

Only minor aircraft repair work is done at the various stations. All major overhaul of aircraft is done at the two repair bases at the Sasebo Navy Yard and the Yokosuka Navy Yard. These two repair bases are equipped to take care of present necessary major overhaul.

BOMBING

As stated before, no regular annual bombing exercises are held, but training is carried out regularly and continuously by all bombing and observation squadrons. Most of the training is done by using a mirror mounted on the target to track the plane. The plane makes a signal at the time the theoretical bomb is released and the observer figures the error from the track of the plane and the instant of release.

The bombs in use are as follows: 15 pound practice bomb, 20 pound service bomb, 220 pound service bomb, and 500 pound service bomb.

The bomb sight in use is the Wimpers Mark II, course directing sight.

The planes used for bombing are as follows: Heavy bombers, Mitsubishi No. 4; light bombers, Mitsubishi No. 2, F–5, Hansa, and Hiro Reconnaissance.

It is believed that great stress is placed on bombing training and that, generally speaking, Japanese aviators are good bombers.

GUNNERY

No regular gunnery exercises are held but training is conducted regularly and continuously in all operating squadrons. Nearly every station possesses a movable gun mount to stimulate plane motion on the ground and evidently much conscientious work is done on ground training. Some training is also done with the camera gun.

The guns in use are as follows: Vickers, fixed gun; Lewis, free gun; Thornton Pickard, camera gun.

Much trouble is experienced with the Lewis gun from jambs.

RADIO

Radio is in quite extensive use in navy planes. A good course in theoretical and practical radio is given at Kasumigaura and training is continued in service squadrons.

The Marconi AD–6 set is used. It has a range of about 100 miles.

The following service planes are equipped with radio: Mitsubishi No. 2, Mitsubishi No. 4, Hansa, Hiro Reconnaissance, and F–5.

TORPEDOES

Some training in torpedoes is given at Kasumigaura, but it is entirely ground work. At present the only torpedo plane squadron actually dropping torpedoes is at Oppama. There is a squadron at Omura, recently formed, but they are not engaging in torpedo dropping at the present time.

The torpedo in use is the type 44, which is an obsolete destroyer type. It is 15 feet long, 18 inches in diameter, and weighs between 1,400 and 1,500 pounds.

All drops are made from 30 feet, and it was stated that sometimes the torpedo is crushed. No drogues are used.

The service torpedo plane is the Mitsubishi No. 4, which carries this torpedo quite readily.

NAVIGATION

It is believed that very little stress is placed on navigation. The course at Kasumigaura is very meager and the practical navigation flights hardly go out of sight of the station. All the instruments in use for instruction are of foreign make and are not the latest equipment. The service planes are equipped with compasses, and that is about all the navigation equipment.

PHOTOGRAPHY

Most of the cameras in use are Eastman, hand-held, with a few German cameras. The German cameras are praised very highly and the Eastman is not. Three or four L-type mapping cameras are in use. The developing and printing are good. Generally speaking, the photographic section fills requirements, but equipment is not of the latest type.

PARACHUTES

Parachutes are not in use at present. The navy has recently purchased eight Irvin parachutes and a demonstration was given by Mr. Ford, an American ex-enlisted man, in March of this year. Following this the first jump ever made by a Japanese naval aviator was made at Kasumigaura by Lieutenant Commander Yamaguchi. The aviation forces are greatly interested in parachutes, and the navy no doubt will provide parachutes in the near future.

CARRIER PIGEONS

Carrier pigeons are used by seaplanes to communicate with home stations, and it is stated that they are highly satisfactory. Lofts were observed at Oppama, Omura, and Sasebo.

FOREIGN INSTRUCTORS

Foreign flying instructors have not been employed by the navy since the original British mission organized and really started Japanese naval aviation. The influence of this mission has done a tremendous amount of good. The training is carried out as planned by this mission and pilots get away to a good start.

COORDINATION

There is no coordination between the army, navy, and bureau of communications in the purchase or design of aircraft and engines. The navy favors British engine and plane design, while the army struggles along with old-type French planes which were evidently recommended by the French mission years ago. The bureau of communications, which regulates civilian aviation, has borrowed one army aviator and one naval aviator, and that is the only connection between this bureau and the army and navy.

STRATEGIC DISPOSITIONS

It is believed that the stations are well located to defend the manufacturing areas around Tokyo, Osaka, and Kobe. Kasumigaura is a powerful station to the north and Omura and Sasebo protect the west, while Oppama protects from the south. The station of Omura is in an excellent position for offense and defense in the direction of China. It is believed that the importance of the location of this station is realized and that it will be enlarged into a great pursuit, heavy bombing, and scouting station. All of these stations are too far away from the Philippines to cause any threat in that direction.

GENERAL

Japanese aviation ashore is in much better condition than was expected. The pilots are good and equipment is good and is cared for in the proper manner. Air stations are equipped with permanent buildings, good landing fields, and fair seaplane facilities. The personnel is alert and on the job. Flying accidents are few and there were only seven deaths last year. One big weakness lies in design. The other big weakness is in fleet aviation. It is believed that comparatively few ships carry planes. Certainly planes can not be launched at will, and the launching must necessarily interfere with the fleet formation. Otherwise the Japanese Naval Air Force is in excellent condition and can do the same things, considering size and design of planes, that the forces of other countries can do.

NOTE.—See the June and July Bulletins for details of individual air stations and aircraft factories.—Ed.

C. POLITICAL

1. Review of foreign political questions.

FOREIGN INFLUENCES IN INTERNAL POLITICS

The influence of training abroad, or by foreigners, on the Japanese people, and statesmen in particular, is very marked and usually reflects to the advantage of the country giving the training. This has worked to the benefit of pro-British and pro-American influence in general. The great importance of American trade, also undoubtedly influences the political attitude of Japan toward America, and will always be a restraining influence on any tendency toward antagonism. Over 40 per cent of Japan's exports go to America.

BEARING OF INTERNAL POLITICAL SITUATION ON INTERNATIONAL RELATIONS AND ISSUES

The Japanese Imperial Government is strong enough so that international relations do not suffer from frequent changes in the internal political situation. A most important concern to America is whether the Japanese administration tends toward liberalism or militarism. There has been a decided change in the former attitude of aggression toward China. Friendliness seems now to be the dominant keynote. The 1923–24 Chinese boycott of Japanese goods made Japan realize that there is an increasing nationalistic spirit among the Chinese against foreign aggressive measures. There is also a growing realization on the part of Japan that the white nations of the world are unwilling to forget race distinction.

FOREIGN POLICIES AND RELATIONS

(A) GENERAL AIMS. IMPORTANT POLICIES OR DOCTRINES

The Japanese are thoroughly imbued with the idea that Japan must expand beyond her home borders to secure room for her surplus population and to provide an independence in resources which can make her a truly powerful nation, and further that she must have absolute security at home. The Japanese have developed a racial pride which calls for leadership among the Asiatics and equal opportunity with Europeans wherever they can assert those principles. See b and c following.

(B) RELATIONS OF OTHER IMPORTANT POWERS: ALLIANCES OR ENTENTES; RECENT TREATIES

The Washington conference marked a new era in Japan's foreign relations. Since then there has been a marked change in the method

employed in the pursuance of Japan's policies on the Asiatic mainland, particularly in regard to China, where duress has been replaced by cooperation and the cultivation of friendliness between the two nations. At the same time Japan's economic control of the mineral reserves and the textile industries in China has been greatly strengthened and to-day her investments in China are valued at about one million dollars.

The important recent treaties and alliances to which Japan is signatory may briefly be listed as—

French-Japanese treaty in regard to the continent of Asia (June 1907).

Five-power naval treaty (1922).

Five-power submarine and poison gas treaty (1922).

Four-power Pacific pact (with two supplementary treaties), (1922).

Nine-power open-door treaty concerning China (1922).

Nine-power tariff treaty concerning China (1922).

Russo-Japanese treaty (January, 1925).

(N. B.—All but the first and last of the above-mentioned treaties were prepared at the Washington Conference).

(C) GENERAL INTERNATIONAL POLITICAL SITUATION

The important phases of the international situation in which Japan is playing a part are mentioned under China, the United States, Russia, and the naval conference at Geneva.

China.—Japan's basic political policy toward China is to remain friendly with China proper and at the same time retain her interests in south Manchuria. In south Manchuria Japan dominates to the extent that all other outside nations politically and economically are almost completely excluded and any effort by the Chinese to build railways is questioned and determined by the Japanese. Japan has given moral and at times material support to Marshal Chang Tso-lin, the military dictator of Manchuria. Japan's export trade to China is very vital to Japan and control of certain resources and raw products considered very important.

Japan participated in the ill-fated customs conference held at Peking in 1926, showing therein friendly consideration for China's troubles and a desire to cooperate with the other powers, particularly the United States.

Japanese nationals have recently suffered much in China and the Japanese Government and Japanese people have shown great patience, particularly in such incidents as that at Nanking. In the south Japan would appear to favor Chiang Kai-shek as representing the more conservative element of the nationalist movement. She

can deal much better with a man than with a party. The new Premier has declared for a stronger stand in China, indicating a more vigorous defense of Japanese nationals and property. There are Japanese naval forces at Shanghai, Tsingtao, and on the Yangtze, particularly at Hankow. Japan has increased her troops in Manchuria to about 15,000 men. Her garrison in the Peking-Tientsin area has been raised to 1,500 and may soon be more than doubled. Two thousand troops have recently been sent to Shantung. Japan can readily reinforce and strengthen her forces in north China.

The United States.—Toward America, at the present time, Japan appears assiduously to be cultivating a feeling of friendliness. The Japanese consuls and diplomatic officers have probably been specifically instructed to direct their efforts to this end. Unless there is a great internal upheaval in Japan, the Government is unlikely to reopen the immigration question for some years to come, although at the formal opening of the recent session of the Diet, the Foreign Minister stated that Japan still felt the sting of the exclusion act and looked hopefully toward future changes or adjustments. This will not be initiated by Japan in the near future, however, for her present economic depression does not present convincing reasons for her cultivating the ill-will of her best trade customer.

Russia.—In January, 1925, Japan signed a treaty with Russia recognizing her politically. The oil concessions in northern Saghalien granted Japan by Russia at this time are at present yielding about 50,000 tons per year. This agreement was heralded as the first step in a happy rapprochement, both political and economic, but Russian activity in China has only added to Japan's fear of red ideas. The two nations' interests clash in north Manchuria even more severely than they do in the political realm. For months Japan has been negotiating with Russia for timber concessions in Siberia and for a settlement in her favor of the fishery question, allowing her to fish in Russian waters. A timber contract covering 1,110,000 hectares and effective from October 1, 1927, to June, 1933, has at last been signed.

NOTE.—In addition to the above the following may be observed: (a) The recent financial crisis in Japan, caused by numerous bank failures, has had a restraining influence and has exhibited a great point of weakness in the economic structure. (b) The present government of Baron Tanaka has assumed a somewhat more aggressive attitude on the part of Japan toward China, which has culminated in the recent demand by the latter that certain Japanese troops in Manchuria be withdrawn.—Ed.

D. MISCELLANEOUS

1. Geographic information affecting the strategy of the country.

The area of the Japanese Empire is 263,064 square miles, made up of Japan proper, 147,652; Korea, 85,229; south Saghalien, 13,934;

Formosa and near-by islands, 13,889; the leased territory in Manchuria, 1,400; and the mandate islands, 960 square miles.

The water area of the northwest Pacific strategically controlled by Japan covers about 5,000,000 square miles, of which half or more is in the South Sea mandate area north of the Equator between 130° and 170° west longitude. While Japan has strategical control of the northwestern portion of the Pacific and the adjacent eastern portions of the Asiatic Continent, the outlying islands are so far away that it would be very difficult for her to defend them all at the same time.

Under the five-power Washington conference treaty the fortification of all Japanese islands south of Japan proper and the Kurile Islands in the north must remain in status quo. This includes fortifications now at Amami-o-Shima, Bonin Islands, the Pescadores, and Koc lung, Formosa.

Japan proper, composed chiefly of four large islands (containing 98 per cent of the Japanese population) is a closely united country and practically invulnerable to direct attack.

The Inland Sea with a fortified entrance on the Korean Straits and two fortified entrances on the Pacific affords a protected waterway of greatest strategic importance to the Japanese Navy. The Korean Straits, 110 miles wide, form the most vital connecting link between Japan proper and continental Asia.

CONCLUSIONS

The Japanese Army has been developed both for home defense and service on the Continent of Asia and is overwhelmingly the strongest military force in Asia. It is being reorganized and trained upon lessons taught by the World War. While the army is relatively weak in materials, this weakness is being gradually overcome. Mobilization would be very rapid and the army is stationed so as to facilitate recruiting and aid mobilization. The Japanese soldier can be expected to fight willingly and well in any war undertaken by the Empire. The army would do well opposed to inferior leadership, but might be defeated by a bold, active, and energetic commander.

Japan's Navy, standing next in strength to the United States and Great Britain, is modern, well balanced, and ready for service. It is relatively strong in battle cruisers and submarines, and superior to the United States in light cruisers.

Japan's geographical isolation is such that her strong fleet could most advantageously hold the strategical defensive but at the same time assume the tactical offensive. So long as the sea routes to Asia are open it would be extremely difficult for any nation or combination of nations to defeat the Japanese Army in Japan, eastern Siberia, or northern China.

NETHERLANDS

A. NAVAL

1. New destroyers.

A visit was made to Burgerhout's shipyard, Rotterdam, where the destroyers *Evertsen*, *Kortenaar*, and *Piet Hein* are under construction. These vessels are of Yarrow design throughout. Two boilers are located in the after fireroom compartment and one boiler in the forward boiler-room compartment. The after half of the casing for the after boiler-room stack is arranged as an exhaust for the engine-room ventilation. The structure aft for the stowage of the seaplane is of substantial construction, running between the mainmast and the house aft on which the after gun is mounted, the plane to be handled by metal booms stepping on the mainmast.

The crew's living spaces forward are sheathed with plywood called "okoume." The officers' quarters are aft, the commanding officer having a cabin stateroom and bath, the cabin and stateroom occupying the width of the second deck at the forward end of the officers' country. The wardroom is well aft, the staterooms being located port and starboard between the commanding officers' quarters and the wardroom. The staterooms were fitted with windows opening to the central passage with wood slats permanently fitted, forming ventilation louvres to the passage. The wardroom has the width of the vessel and will be handsomely sheathed in wood both overhead and on bulkheads and ship's sides, the finish being in ash paneling. This design apparently retains the length and breadth of the design of the British *Ambuscade* (Yarrow), with a draft (maximum) of 9¾ feet and displacement of 1,620 tons against draft of 8¼ feet (maximum) and displacement of 1,210 tons of the *Ambuscade*. Apparently considerable attention has been given in the Netherland design to habitability, owing to the service of these vessels in the Dutch East Indies.

The subject of welding was brought up, and information was furnished that welding was only used to supplement calking for water and oil tightness, the structural steel used in the hull being approximately 94,000 pounds per square inch. No aluminum alloys are being used in hull construction owing to its cost, although it is understood that it is used in certain parts of the machinery installation.

One destroyer had been launched; the other two were on the ways.

NOTE.—The Netherlands is building six destroyers of this type. They will have a speed of 34 knots and mount four 4.7-inch guns, torpedoes, mines, depth charges, and one seaplane. They will all probably be sent to the East Indies, where the Dutch naval force is concentrated.—Ed.

PERU

A. MISCELLANEOUS

1. Geographic information affecting the strategy of the country.

Peru is divided naturally into three grand geographical divisions:

First, the west coast. This is a narrow strip extending north and south some 1,400 miles and with an average width of about 80 miles. Rain is practically unknown, but fogs are frequent. Water is scarce. This strip is practically a desert, save at the places where small streams descend to the Pacific. Where water is available the land is productive, cotton being the staple crop.

Second, the highlands of central Peru. The tablelands at from 8,000 to 14,000 feet are the great stock-producing sections. Cattle, sheep, llamas, and goats thrive. Barley, potatoes, and a small amount of wheat are cultivated. In the mountains around are the mineral riches of Peru. Copper is the most important of these.

Third, the tropical base. This is as yet a vast unknown country. The prevalence of malaria and the abundance of noxious insects retard the development of this section. There is the added drawback of difficulty of transport. Roads do not exist, and the cost of construction is prohibitive.

This natural division has had the following results:

(*a*) There is no north and south railway line throughout the country.

(*b*) The two railways that make the steep climb from the Pacific to the highlands are wonderful feats of engineering, but their practical utility is slight. Due to steep grades and track accommodation, four box cars constitute a train for the largest locomotive. Larger engines than those now in use could not be used, due to sharp curves and limitations of rail (estimated as 56 pounds) and bridges. The limit of traffic on either of these railways is 14 trains (4 box cars each) per day. It is thus seen that the real limit is about two standard troop trains a day. Over a month would be necessary to move a division.

It is apparent that only small forces will ever be involved in operations here.

Save only in the case of hostilities with Bolivia is the issue likely to depend on land operations. The natural route of invasion by Bolivia is by way of Lake Titicaca.

Peru has no intention of waging war with anyone, least of all with Chile. It is apparent that she will submit to anything rather than again fight Chile. Peru has a distinct military inferiority complex. She is weak, and no one appreciates that fact better than she

herself. Any one of the contiguous countries (save perhaps Ecuador) could probably defeat Peru. In most cases there is not even the shadow of a doubt as to the outcome.

Peru's army is only a police force, with no ambition to become anything else.

NOTE.—It will be recalled that considerable animosity exists between Peru and Chile over the famous and still unsettled Tacna-Arica dispute.—Ed.

POLAND

A. POLITICAL

1. Foreign policies and relations.

(A) GENERAL AIMS, IMPORTANT POLICIES, OR DOCTRINES

Poland may be said to have but one aim in her foreign policy—the development within her present frontiers of the first-class nation she believes it her destiny to become. It is with this end in view that the maintenance of her status quo as laid down by the treaty of Versailles becomes a vital issue; that threats of territorial despoilment by Germany and attempts at subverting adjoining territory by Russia take on such a menacing aspect; that influence in the League of Nations becomes an ardently sought-for objective; and friendship with the United States and Great Britain a goal for the attainment of which no efforts must be spared.

In the achievement of this wholly legitimate aim, Poland is seriously handicapped by her geographical position and topography. Lying between two potentially, if not at present actually, powerful nations, whose words and deeds with regard to the Polish Republic since its renaissance have, to say the least, been far from reassuring, Poland's task is not an enviable one; nor, in the light of the evident desire of these two countries to alter the Polish frontiers, can the Polish aggressively defensive attitude be criticized. Moreover, Poland's topography—a practically indefensible plain without natural boundaries—which necessitates the promotion of satisfactory relations with bordering States regardless of the unfriendliness manifested by them from time to time, complicates Poland's foreign policy. Alliances with France and Rumania were effected some time ago as a precaution against Soviet aggression; and that with Rumania, which was renewed upon its expiration in the spring of 1926, is now reported as directed against all aggressors instead of against Soviet Russia alone.

A difference in the attitude of Poland toward the encroachments of Germany and Russia is very obvious, probably due to the position of the other large powers. Poland apparently feels less anxiety

regarding her eastern frontier because of the opposition of the world in general to communist advances. On the contrary, the feeling seems to be gaining ground abroad that some adjustment should be made between Germany and Poland to obviate the necessity of the former's communicating with her east Prussian territory across Poland. Thus, apparently the vagaries of Soviet Russia are to be endured in the hope of laying a firm foundation for future amicable relations. The activities of Poland's western neighbor, on the contrary, are eyed askance, and an attitude of belligerence is struck at the very intimation of any border changes. This policy is largely due to the fact that, while Poland can not hope to compete in western markets with the more highly efficient German production, her position with regard to the Russian market is extremely favorable. It is, therefore, undoubtedly to her interest to disregard or minimize the provocative conduct of the soviets in Polish border districts.

Poland still turns to France for alliance and material aid, but the feeling seems prevalent that a foreign policy based upon French alliance alone is not a sufficient guaranty of Polish interests indefinitely. The entire energy of the Government, therefore, has been directed toward making Poland self-sustaining, so that she will be independent of France or any other nation. There has been a marked tendency on the part of Poland for some time to cultivate British friendship; however, this does not mean that Poland accepts the view of the British public that peace will follow disarmament. Poland believes that first of all treaties of guaranty and nonaggression and arbitration must be entered into and, as a result of them, a gradual program of disarmament can be accepted.

(B) RELATIONS WITH OTHER IMPORTANT POWERS; ALLIANCES OR ENTENTES; RECENT TREATIES

Germany.—The question of upper Silesia, together with that of the Polish Corridor and Danzig, has caused considerable friction between Germany and Poland. The Germans have never really accepted the Corridor as a permanent actuality, since they regard the present colonial position of east Prussia as an intolerable one; nor have they been content with the division of upper Silesia between Germany and Poland, for they maintain that a majority of the total upper Silesian population voted in favor of German sovereignty and the entire area should, therefore, have been transferred to Germany.

Since Locarno, Germany has constantly emphasized the fact that she succeeded in her contention that she has the right to refuse to participate in common action of the members of the league against a belligerent state which the league has recognized as the "aggressor."

Although such an interpretation was never admitted by any member of the league, Germany persisted in it and was apparently guided by it in drafting Article III of the Russo-German neutrality pact. This pact Poland regards as contrary to the League of Nations covenant, paragraph 3 being interpreted as an obligation by Germany toward a third party with respect to the application of the procedure of the league in a matter which has not been defined by the league itself.

No real progress has been made up to the present in the pending Polish-Russian trade negotiations.

Russia.—Soviet agents have been active as usual in attempting to create unrest and agitation in the eastern Provinces among the white Russian minorities. The Russo-German neutrality pact is regarded by Poland as a menace to all countries bordering on Russia, especially Poland; and the recent initialing by the Latvian Foreign Minister of two preliminary paragraphs of the Russo-Latvian agreement undoubtedly hastened the reopening of Polish Russian negotiations.

Baltic States and Finland.—The independence of the Baltic States and Finland is one of the cardinal principles of Polish foreign policy. Polish relations with these countries are satisfactory, with the exception of Lithuania. Poland has absolutely no difference with Esthonia. Polish-Finnish relations are friendly but not cordial because of Finland's pro-German sympathies. Relations with Latvia, which took a decided step forward with the signing of a commercial treaty in February, 1927, made an unfavorable turn following the initialing of part of the Russian-Latvian treaty. Lithuania's unfriendly attitude toward Poland is the outgrowth of the Vilna affair. As far as Poland is concerned, there is no Vilna question, the matter having been settled by the council of ambassadors in 1922. Lithuania, on the contrary, embraces every opportunity to bring the question to public attention, attempting to create the impression that as long as the Vilna issue remains unsettled in favor of Lithuania it will continue to endanger the political situation of eastern Europe.

Rumania.—On March 28, 1926, Poland signed a guaranty treaty with Rumania to replace the Polish-Rumanian alliance which expired on March 3 of that year. The new treaty is valid for five years. The formula of the Locarno treaty is quoted in the body of the new treaty as well as articles 10 and 16 of the League of Nations covenant, but in reality it has the same purpose as the former treaty; that is, defense against a Soviet attack. The new agreement is broader in scope than the former alliance, undertaking reciprocally to maintain the status quo against all aggression.

(C) GENERAL INTERNATIONAL POLITICAL SITUATION

Poland asks only peace within her present frontiers, but in the face of the determination of her two powerful neighbors to the east and west—Russia and Germany—to alter the Polish frontiers, it seems questionable whether she will be granted her desire. One thing is assured, however, Poland is determined to retain her present territory even at the cost of war. On this subject all Poles are united. To them the Corridor is the only outlet for the products of their thirty millions of people, while Polish Silesia means economic independence of German coal; and to surrender either or both of them would be to relegate Poland to a position of minor importance among nations, to which they would never consent without a struggle.

NOTE.—Russia is the bête noir of Polish foreign affairs. The recent crisis over the murder in Warsaw of the Soviet minister to Poland has successfully passed, partially on account of Poland's forbearance and partially because Russia can not afford to go to war. But the Polish-Russian frontier is, as it has been, one of the danger spots of Europe.—Ed.

PORTUGAL

A. NAVAL

1. Reorganization of the Portuguese Navy.

The Minister of Marine will soon submit to the council of ministers a project of reorganization of the Portuguese Navy, to which it is said that the Government will give its approval. Thirty vessels of the most modern type (light cruisers, destroyers, and submarines) will be bought abroad in the event of this bill being passed. It is stated unofficially that the construction will soon begin of two cruisers of 8,000 tons at a cost of £4,000,000.

NOTE.—Whatever reconstruction Portugal may attempt, it is safe to assume that the same will fall under British influence because the latter is so strong in Lisbon.—Ed.

B. AERONAUTICAL

1. Aeronautical notes.

(*a*) Lieutenant Neves Ferreira, of the Portuguese naval aviation, has left on the transport *Pero de Alenquer* with a staff of experts to organize the new aviation center in Maccao (China).

(*b*) Flying over Portuguese territory is to be governed by a set of 21 articles which form part of Decree No. 13537, published

recently in the Official Gazette. Aircraft of Portuguese registry must be owned by Portuguese citizens or firms. Portuguese aircraft flying over Portuguese territory or adjacent territorial waters must, among other requisites, be manned by a Portuguese crew, unless special authorization is given in special cases. Portuguese military aircraft only may transport photographic cameras, arms, ammunition, and explosives. Aircraft of either Portuguese or other registry may not fly over the forbidden zones, fly over any towns or villages at heights such as will not permit their landing outside the agglomeration in case of engine trouble, make acrobatic or exhibition flights over cities, villages or groups of persons, unless duly authorized thereto, fly at small heights in the vicinity of persons or buildings, drop any ballast which is not permitted by the regulations, drop any but postal matter in the precincts of the zones of the airports. In peace time the Government may forbid any national or foreign aircraft to fly over the territory or waters under its administration. The crew of any foreign airplane landing on Portuguese soil and wishing to resume its flight must comply with regulations governing Portuguese aircraft and must exhibit such documents as are required from Portuguese citizens. Unless invited, or expressly authorized thereto by the Government, no foreign military aircraft may fly over Portuguese territory or territorial waters.

(*c*) Colonel Enard, of the British Army, had a conference with the Portuguese Minister of Marine. Colonel Enard made an offer of £500,000 to the Minister of Marine for the acquisition of navy planes for the Portuguese Navy on condition that all such material should be supplied by British firms.

(*d*) On hydroplanes of the *Telier* type there are being mounted 200-horsepower Hispano-Suiza motors which were purchased in France. The planes in question had long been incomplete because they lacked these motors.

(*e*) Among other material which is to be purchased for the military aviation is a pursuit unit consisting of several planes of the Martinside type.

(*f*) A new shed (metal frame covered with zinc) is being constructed at Bom Suceso navy aviation center (near Lisbon) near the submarine dock and 40 yards from the Tagus River. It may be completed by the end of next month and its capacity will be approximately six planes.

RUSSIA

A. MILITARY

1. Army personnel.

The following statement seems to be in general an accurate appreciation, though the antipathy to military service would appear to be more marked than the statement of itself indicates. The average Russian peasant to-day, just as formerly under the Imperial Government, considers that military service is something inevitable, like the four seasons, and that there is nothing to do but put up with it.

The summer training season of 1926 afforded an emphatic example of the unwillingness to serve during the months when work in the fields is important; at that time only about half of the territorial contingent called for service reported, the number of absentees being so large that the military authorities were powerless to enforce attendance without stirring up a great hostility to the army.

(*a*) *General.*—Antagonism to the Red Army as a communist weapon no longer exists. The establishment of universal conscription and the discipline in the army have removed antipathy toward the "krasnoarmiets" (Note.—"Red Army man"; the word "soldier" is not ordinarily used), which term, at the beginning of the Soviet régime, was synonymous with that of "Bolshevik." The behavior of the young soldier in public is much better than that of the young workman.

(*b*) *Workmen.*—The relations between workmen and soldiers are much better now than under the Tzarist régime. During the last months troops have been seldom used (except in the Urals and the Don Basin) to keep order, the workmen no longer look upon the army as the government police, and social intercourse between the army and the workmen is more common than formerly.

One effect of this is that it is very doubtful whether, in the event of real trouble, the rank and file would set against the workmen.

(*c*) *Peasants.*—The only objection to the army in the villages is that it takes men away from their work in the fields. There is no personal antagonism, but the idea that the peasantry are eager to join the army is pure propaganda. During the most difficult economic times under the soviet regime soldiers were better clothed and fed than most of the population, and the contingents were not especially unwilling to serve in the army.

There are a certain number who look upon the army as a means of education, and there is no doubt that much has been done to increase the education of the peasantry by the army schools. Many

of this class on leaving the army endeavor to secure jobs in local administrative offices.

(*d*) *Commanding personnel.*—The most important change from the old Tzarist time is the improvement in the relations between the public (especially in the towns) and the troops on the one hand and commanding personnel on the other. In the towns and cities they are no longer looked upon as commissars, and are more popular than the civil authorities. In the villages, however, the "commis-ar" feeling remains.

There is little or no intercourse between the villagers and the commanding personnel, who, in general, live the life of the lower middle class. This facilitates the relations between the ex-workmen commanders and the ex-Tzarist commanders, and, in many cases, has a cultural influence on the former.

SPAIN

A. AERONAUTICAL

1. New Spanish aircraft.

The progress of Spanish aviation was displayed at a review at Getafe airdrome, near Madrid, recently, when 120 aircraft of different types were shown, all of which have been built or assembled in Spain during the last year. The King inspected the machines, and the patriarch of the Indies blessed the 14 new squadrons formed by these aircraft.

The strength in army airplanes is about 450, but under the program now in hand the number will ultimately be 1,400. De Haviland, Breguet, Fokker, and Dormier "Wal" aircraft are constructed or assembled under license at half a dozen workshops, and Spanish constructors are beginning to produce types of their own. The Government is building one type, the A. M. E., at the military works at Cuatro Vientos. This type is fitted with Hispano-Suiza engines. A Catalan, Captain Barada, has designed an airplane to be armed with four machine guns, all of which can be fired by the pilot. An engine said to give great power for low weight and size has been designed by Captain Barada, and is being tested.

A feature of the ceremony at Getafe was that each of the new squadrons has a godmother. Among the godmothers were the King's two daughters, the Infanta Beatrice of Bourbon-Orleans and the Marquis de Estella's two daughters.

YUGOSLAVIA

A. ECONOMIC

1. Economic notes.

(A) ECONOMIC PENETRATION OF FOREIGN INTERESTS

A considerable portion of the industries of the former Austro-Hungarian Provinces has been developed by German and Austrian capital. As an example of this the forest industries may be cited where 50 per cent of the capital is foreign. Swiss and Italian capital are active in hydroelectric development. The Bor copper mines are owned and operated by a French company. English capital is engaged in the central European mines, and in September, 1926, the Anglo-International Bank (Ltd.) was founded, which is a matter of vast economic importance to the country, acting as an intermediary for the expansion of British capital in Yugoslav industries. American and British capital is invested in bauxite deposits. German reparation deliveries are giving German exporters a strong foothold in the Yugoslav market. The option which the Blair interests hold to loan a total of $100,000,000 would, if carried through, constitute an important American penetration into the country. The proposed undertaking includes the building of a railroad to connect Belgrade with the Cattaro on the Adriatic, the most promising port in the Kingdom.

Foreign capital is used in the development of practically every industry of national importance.

Foreign labor is used to some extent, the engineers and personnel in the mining industry are of non-Slavic origin, owing to the agricultural proclivities of the nationals.

(B) PRINCIPAL ECONOMIC INTERESTS OF NATIONALS IN FOREIGN COUNTRIES

Yugoslavia is so undeveloped economically in every respect that its nationals have made no special attempt to acquire interests in foreign countries.

(C) BEARING OF THE ECONOMIC SITUATION ON INTERNATIONAL RELATIONS

Although Yugoslavia owes her present economic development largely to foreign capital and energy and is practically dependent upon foreign capital to increase her economic capacity, she nevertheless maintains an independent foreign policy along these lines. Foreign commercial and economic influences affect her policies only in so far as regards discrimination against foreign investments.

The extremely difficult position of Yugoslavia at the present time indicates the necessity for combinations with other countries. In order to safeguard her economic development her only method lies in a system of certain natural alliances. Yugoslavia must now take primarily into account the economic offensive of Italy in the Balkans, by which Italy seeks to isolate Yugoslavia in order to strengthen her own foothold.

Yugoslavia's desire for an export outlet through the Greek port of Saloniki has aroused the apprehension of Greece that the stronger nation will some day seize the port by force. While the Greeks have allocated a zone in Saloniki to the Yugoslavs, the former are declared to have placed many obstacles in the way of its development, particularly with reference to the shipment of freight on the Greek railways from the Serbian border to the port. These matters have been under negotiation for some time, but no satisfactory settlement has been reached.

(D) GENERAL CONCLUSIONS

This Kingdom, through which pass all the land and river routes from western Europe to the Near East, is the natural gateway for commerce between these two sections. The abundance of labor and water power, combined with the great agricultural, forestry, and mineral resources, makes it a potential industrial center of the future from which the markets of the Near East can draw their imports. The Adriatic seacoast with its numerous but as yet undeveloped harbors constitutes a valuable economic and commercial aspect, capable of considerable development.

In the development of these economic possibilities Yugoslavia's chief problems are: (1) To weld the southern Slavs into a political unit with a strong national consciousness; (2) extensive capital expenditures.

Although the political situation at the present time is more unsettled than at any time during the past two years, progress may be expected, as it is realized that domestic strife has hitherto delayed economic development.

Agricultural production has increased greatly during the last five years, but is still far below capacity figures. A number of good agricultural schools have been opened and the Government is taking steps to promote the use of modern farming methods by the peasants.

The general economic situation during the past year was complicated by problems of an emergency character. The floods in the great grain region, the damage to crops from heavy rains and the lateness of the harvest commanded the attention of the Government and forced economies in public expenditures in order that the treasury

might be able to respond to these immediate demands. The prompt action of the Government to these demands and the sound position of the country were reflected in the firmness of the exchange during this period.

With its debt problems in course of solution, its international position recognized, its finances in good condition, and with a more stable and honest central administration, foreign credits will doubtless be forthcoming to start the Kingdom toward the development which its resources so amply justify.

Yugoslavia has both the area and population essential to economic prosperity and a strong international position.

NOTE.—One of the chief political problems of Yugoslavia, namely, the preventing of a German-Austrian alliance, has an economical aspect in that by so doing, Yugoslavia can obstruct German economic penetration in the Balkans. At present the outstanding economic problem of Yugoslavia is the development of easy access to the sea—either by the now free port of Saloniki or by the projected commercial port at Spalato.—Ed.

B. POLITICAL

1. Foreign policies and relations.

(A) GENERAL AIMS, IMPORTANT POLICIES, OR DOCTRINES

Yugoslavia is a new State intent on consolidating its internal situation. However, certain aims and policies are forced upon it by circumstances. The principal of these are: The acquirement of Saloniki; greater freedom in the Adriatic by neutralizing Italy's influence therein; prevention of union of Germany and Austria in the general aim of stopping German penetration into the Balkans; insurance of Hungary's compliance with the peace treaties; and recognition of community of interest with the great Slav State, Russia.

(B) RELATIONS TO OTHER IMPORTANT POWERS; ALLIANCES OR ENTENTES; RECENT TREATIES

The little entente.—This alliance of three States, Yugoslavia, Rumania, and Czechoslovakia, held together by bipartite treaties, was formed to compel Hungary's observance of the peace treaties following the 1914–1918 war. It has been extended to include all matters of mutual interest. The alliance was renewed in June, 1926, for a period of three years. The real unity of the little entente has been weakened by the Italian-Rumanian treaty of September, 1926,

by which Italy establishes friendly relations with Rumania through her recognition of Rumanian sovereignty over Bessarabia.

Czechoslovakia.—An alliance was made in 1922 for five years, providing for close economical and political support and consultations in case their common interests are threatened. Both States recognize their community of interests, their racial similarity, and dependence upon Russia as the parent State.

Italy.—Yugoslavia at all times fears Italy's aggressive policy of extending her influence to the East: these fears have been accentuated following the signing of the treaty of Tirana in November, 1926, between Italy and Albania, by which Italy assumes a virtual protectorate over Albania, and which has been interpreted by Yugoslavia as Italy's first step for her advance into the Balkans. The signing of this treaty has caused much controversy and still remains an unsettled and dangerous issue between Italy and Yugoslavia.

Albania.—This State is the political battleground of Italy and Yugoslavia. Each desires to assimilate it. When the political fight will develop into armed action is problematical, but the situation is at present dangerous.

Greece.—Saloniki, held by Greece, is the point of ingress and egress for all commerce of southeastern Yugoslavia. Indications are that it is the latter's intention to acquire the port on the first opportunity.

Hungary and Austria.—Yugoslavia's effort will be directed toward compelling these two countries to observe the peace treaties following the 1914–1918 war, this to prevent the penetration of Germany to the southeast. Yugoslavia will be aided in this policy by Germany's neighbors to the west, south, and east.

The conclusion of the Italo-Hungarian treaty of friendship and arbitration in April has not met with a favorable response from Yugoslavia; the signing of this treaty borders another of Yugoslavia's frontiers with a nation friendly to Italy. Besides the treaty, the question of Hungary's access to the sea by way of Fiume is also being arranged with Italy. This will necessitate the passage of Hungarian goods through Yugoslavia along that portion of the railroad leading to Fiume.

Bulgaria.—Yugoslavia hopes to obtain Bulgaria's aid in the partition of the eastern panhandle of Greece. However, the present government in Bulgaria lacks Yugoslavia's confidence, thus delaying the realization of the aim of combined effort.

Bulgaria may be considered as another nation on Yugoslavia's borders friendly to Italy.

Russia.—Although Yugoslavia recognizes the community of interests with Russia as a Slav nation, she has not recognized Soviet

Russia, realizing that this would lessen her influence in the little entente by giving offense to Rumania.

Poland.—In September, 1926, a treaty of amity and arbitration was signed by Poland and Yugoslavia. The pact of amity provides that both Governments undertake to concert together on questions of external politics of interest to both parties. Both nations undertake in the event of international difficulties to proceed with an immediate exchange of views. Poland has similar agreements with the other two members of the little entente.

France.—The most cordial relations exists between France and Yugoslavia as well as between France and members of the little entente. Keen rivalry exists between France and Italy for control in Balkan affairs. France is, therefore, directly interested in all external matters affecting Yugoslavia, and Yugoslavia relies upon France for friendship and military assistance in case of aggression.

(C) GENERAL INTERNATIONAL POLITICAL SITUATION

The location of Yugoslavia in the Balkan Peninsula on the eastern shore of the Adriatic Sea in the paths of expansion of Italy, Germany, and Russia marks her as on the rim of a whirlpool and it will require strenuous efforts on her part to keep from being sunk.

Yugoslavia's position in the little entente has been weakened by the Italo-Rumanian treaty and her frontiers are surrounded by nations friendly to Italy.

Her main hope for the present lies in the establishment of an amicable understanding with Italy over the treaty of Tirana, and in the general interests of European nations to preserve peace in the Balkans, and in the strength of her efficient army should armed action be resorted to.

SPECIAL ARTICLES

I. THE NICARAGUAN CANAL AND AMERICAN STRATEGY

[The following article, written by Rear Admiral Degouy, French Navy, retired, was recently published in the Revue des Deux Mondes, and is reproduced here as indicative of the French naval attitude toward the United States in Central America, in war and peace.]

There is nothing new in the statement that a close bond often unites events and incidents which, regarded superficially, appear to be absolutely independent of each other.

A few weeks ago Europe was suddenly informed that a conflict had arisen between the Liberals and Conservatives of Nicaragua which had provoked an intervention on the part of the Government of Washington. The marines, who always appear—whatever the

style of their collars or the color of their caps—at the beginning of all American and Asiatic complications, had landed at Bluefields, a port of the small Central American Republic, "to defend the interests of the citizens of the United States" in this troubled country.

To be sure, it was not merely a question of private interests. "Informed" publicists who recalled certain precedents, such as the occupation of Panama in 1904, or, further, who had known for some time that the Managua Government had accorded the United States a concession for a future interoceanic canal crossing its territory, were not long in discovering that the Liberals under Sacasa were more or less hostile to the realization of this project.

The Conservatives, under Diaz, he being friendly toward, or at least protected by, the North Americans, were, on the contrary, in favor of the execution of the new waterway which would take the place, to the benefit of the United States (increasingly watchful of events in the Pacific) of the one we were not wise enough or able to build at the end of the last century across the Isthmus of Panama.

On February 25 it was learned that the President of the Republic of Nicaragua had taken the initiative in placing his country under the protectorate of the United States: it is impossible to avoid using this term in describing the results of a convention certain clauses of which were manifestly dictated by the unexpressed idea of making the entire Nicaraguan territory the "zone exclusively reserved" for the new American canal.

Everything was thus explained except the immediate reasons for the new anxiety manifested by the United States to safeguard rights which it had seemed to disregard for 40 years or more. The fact is, as we have just intimated, that clouds were gathering on the horizon in the direction of China and Japan and it was also being realized at Washington that the axis of the American policy would soon pass from the Atlantic to the immense ocean which occupies, of itself alone, two-fifths of the surface of the globe.

It is also true that the Panama Canal—as recent grand maneuvers have clearly shown—would seem to be inadequate for the rapid passage of a fleet through this narrow isthmus; inadequate and even dangerous since Culebra still continues to slide into the cut during the rainy season. In addition to this, our poor terrestrial crust having for some time past seemed to be very unstable, this singular mountain, in its excessive eagerness to realize a well-known biblical prophecy, will before long fill up the artificial valley which man has had the temerity to excavate at its feet.

It was therefore wise American policy to take all necessary measures to satisfy the demands of naval strategy by assuring, through the creation of a second maritime route, a more prompt and reliable

passage from one ocean to the other for the naval forces of the United States.

We know very well, however, that the enterprise of which we are speaking is one which will take a long time to accomplish. No matter how favorable the conditions may be for the establishment of a Nicaraguan Canal—and we shall have something to say regarding this—those in charge of affairs in the great Republic can scarcely count upon full use of this second outlet into the Pacific under about 10 years, during which time they will have to content themselves with the Panama Canal in spite of its serious defects and above all in spite of the fundamental disadvantage always presented, when confronted by an active adversary, of a single narrow neck which can give passage slowly to but one or two units at a time since locks have to be used.

It goes without saying that every precaution of a military nature was taken in the vast and magnificent bay of Panama to lessen the danger of this situation. Without being unduly indiscreet in the matter, we may say that thanks to the favorable situation of the islands of Taboga, Otoque, San Miguel (Archipelago of the Pearl Islands) and to Point Chame, the immediate approaches to the outlet of the canal may be swept by powerful batteries under the shelter of which the American squadron could gradually form without the enemy naval force—the heavy units at least—being able to interfere otherwise than by a gunfire at far too great a range to be effective.

The heavy units, yes; but what about the light vessels of different types, the very fast destroyers and the submarines, nearly always invisible and both consequently practically invulnerable to the coast guns?

They would constitute a serious difficulty for the defense of a squadron in the precarious phase of a slow formation as the vessels emerged one by one.

Now, as a matter of fact, the Washington Treaties of 1921–22 which merely fixed contingents in heavy units, had the effect, not anticipated by the advocates of disarmament, of multiplying the number of the light units of all the naval powers, and furthermore and above all, of bringing the strategic faculties of these small craft (speed, endurance, radius of action) to the highest point.

Thus it is that the Japanese submarines were increased from 1921 to 1927 by more than 60 units, eight of which have a submerged displacement of 2,000 tons, a surface speed of 20 knots (10 knots submerged), and a radius of action of 11,000 nautical miles.

The discussions took place mainly in November and December, 1921. The agreement was signed on February 6, 1922.

Five hundred and twenty-six thousand tons of first-line battleships and first-line cruisers were allowed America and England; 315,000 for Japan; 175,000 for Italy and France.

Eleven thousand nautical miles. This would make it possible to cross the Pacific twice; one can well understand that such figures gave the directors of the United States Navy food for thought. Let us note also that the Japanese submarines, less favored in the matter of endurance, could always be towed part of the way across by the large vessels, and if necessary could take on supplies at the Marianne (Guam) or Marshall (Chatham) Islands, by bearing off slightly to the south of their course toward Central America. Finally in case of the conflict so long predicted and which we always hope will never occur, a port of call at a point in the California peninsula would aid them in overcoming the obstacle of distance, sparing them at least 1,600 miles of navigation without touching port. It is easy to believe that the good will of the Mexicans would be entirely for the Japanese; and probably slightly more than good will. But let us not take up that question.

This brief survey of the possibilities doubtless helps us to realize that the heads of armies and navies, in these days when so many marvelous things are so rapidly accomplished, have less right than ever to become negligent, and we see, moreover, one of the principal reasons which led President Coolidge to declare war on "light vessels." And once more we perceive that everything is linked together; the Nicaraguan conflict with the American option relative to a new canal; the matter of this new waterway with the realization of the inadequacy and precariousness of the old one, the Panama Canal; and finally the realization that it is necessary to submit to this inadequacy for ten dangerous years, with Coolidge's proposal of disarmament covering small surface and underwater units, the very ones which would prove most dangerous to the superb dreadnoughts of the United States Navy.

Meanwhile there are probably other motives behind the proposal itself as well as the choice of the moment at which the President decided to make it. Is not the complexity of the reasons governing our decisions a well-known fact in psychology? In the present case, we Frenchmen can not forget that in December, 1921, our submarines were atatacked by the American and English representatives at the first disarmament conference. The slanderous harshness of Mr. Balfour's speech against the officers of the French Navy, who, according to him, in a struggle against England, proposed to take the German pirates as an example, will not soon be forgotten by us; nor will we forget the insertion in the agreement—but apart from the text of the treaty—of a declaration, the personal work of a member of the United States Senate, condemning all use of the submarine, without

appeal, in which the signatory powers agreed to do away with all underwater vessels. This did not, however, prevent any one of them from continuing their construction.

We were made a direct target six years ago. We are still in that position. Fortunately the French Government made plain to the Cabinet at Washington the reasons which compelled them to decline the proposition of a new conference in a reply which was perfectly courteous and even very friendly in tone, but firm, while the fundamentals of the subject were not touched upon—always a difficult matter in diplomacy.

There are many other interests, private in this case, but very potent in the domain of political elections! The powerful metallurgical firms who realize that what is not spent on light vessels will be devoted to large units where the profit—owing to heavy armor plating—is much greater for the constructors, have conducted a vigorous propaganda on the other side of the Atlantic, in favor of a close limitation of the number of light vessels; and this is the more opportune because it is precisely in 1927 that the signers of the Washington agreements may, under certain conditions, again take up the construction of dreadnoughts.[1]

But let us drop all these considerations. Let us take the positive fact that for a long time to come these dreadnoughts, both old and new, will have beside them—and at the same time against them—small cruisers, destroyers, and submarines, to say nothing of aircraft and the dreaded bomb; and recognizing that the Americans are right—from the military point of view—in measuring the consequences of this fact while planning their outlet to the Pacific, let us consider the future Nicaraguan Canal and let us specify what kind of services this second maritime route will be called upon to render to the United States naval forces.

When, after the successful completion of a passageway through the Isthmus of Suez, scientific and industrial circles began to consider the long curved strip of land connecting the two American Continents, three routes for a canal were proposed—across the Isthmus of Darien, across the Isthmus of Panama, and across Nicaragua.

The first utilized an appreciable narrowing of the Isthmus of Panama between the Gulf of Darien, a Colombian dependency on the Carribean Sea, and the much smaller but deep gulf joining the estuary of the Rio Boyano and bearing the same name as the largest of the Pearl Islands, San Miguel, of which we shall speak presently in connection with the defense of the approaches to the roadstead of Panama.

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[1] Our financial situation does not permit us to benefit by this provision in favor of units which would cost nearly a billion francs. Perhaps we must look toward creating an altogether new type. Plans are now being made in this direction.

This route, first recommended by Lieutenants Bonaparte, Wyse, and Reclus of the French Navy[2] who explored the entire isthmus and especially this region of Darien, was abandoned almost immediately. M. Reclus himself made the first studies for the present Panama Canal, concerning which, in order not to encumber the present discussion, we shall say nothing but merely refer the reader to the succinct but nevertheless clear and comprehensive study published in this periodical by the late General Mangin in his treatise Autour du Continent Latin.[2]

This brings us therefore to the third plan, the special work of American engineers, that of the future Nicaraguan Canal.

Very different and somewhat removed from the other two, this route cuts obliquely through a region of Central America which is considerably broader than the isthmus and which region, in the form of an irregular quadrangel, constitutes the State of Nicargua. Let us say at once, in order to bring out clearly one of the phases of the difference which we are pointing out, that instead of a uniform cut 50 miles long, as in the case of the Panama Canal, this route involves a water course of a complex character, as we shall see, which stretches for 170 miles between the two oceans.

But in the eyes of the Americans, although they did not suspect the seriousness of the difficulties they would encounter in the Panama route when making their plans, the inconvenience of a much longer distance to travel was well offset by the remarkable advantage that at Nicaragua, for 121 miles of the total 170 miles to be traversed, navigation would be free, thanks first to the vast lake which stretches along the southeastern boundary of the State (60 miles wide, 99 miles long) and then to the broad and deep outlet of this small island sea into the Atlantic, the San Juan River, which is navigable for large vessels for 64 miles of its course and is in fact a small St. Lawrence.

There was therefore—including the six locks (a very small number and far exceeded in the Panama Canal) with a total length of 0.9 miles—only 27 miles of canal to be cut—16 miles on the Atlantic side and 11 miles on the Pacific side. The 22 miles remaining would be traversed in basins formed by means of dams from three small rivers, the Deseado and the San Francisco, tributaries of the San Juan, and the Tola in the rapid watershed of the Pacific.

The depth of the water in the old American plans was fixed at 26 feet. It is probable that it will be increased to 33 feet since the

[2] The part played by the French Navy in the initial stage of the vast enterprise of piercing the American isthmus is not sufficiently understood. In 1879, in particular, the officers of the cruiser *Dupetit-Thouars* (Captain Lefévre, Commander Turquet de Beauregard, Lieutenants Wyse and Bonnet, and Midshipman (first class) de Pommereau) performed very important preparatory work on the Pacific side.

latest dreadnoughts of the United States (*Colorado* type 1921) draw 30.5 feet when fully laden and a little more than this in fresh water. It was formerly agreed that units of this size would discharge a good part of their coal at the entrance to the Canal and fill up again on leaving it. To-day, however, the necessity of making the transit rapidly outweights everything else.

In this connection we note that in 1880 it was estimated that it would take 28 hours to pass through the Nicaraguan Canal from Graytown (Atlantic) to Brito (Pacific). The final route will perhaps represent a gain of one or two hours. The increase in the average speed in the sectors of open navigation will also represent some gain. Nevertheless, owing to the considerable difference in the respective water levels, the time will still be well above that required to make the transit through the Panama Canal, which is between eight and ten hours.

The Lake of Nicaragua itself furnishes ten times more water than is necessary for the regular service of the canal. In addition there are the artificial basins of the small rivers mentioned above.

The question of the salubrity of the region does not arise here as it did at Panama before the American engineers had successfully combated malaria and yellow fever, especially after science had succeeded in establishing the fact that these diseases were propagated by the mosquito, and this knowledge made it possible to render the country healthful by simple precautionary measures against these insects and by a well-understood general hygiene. However, the climate of Nicaragua, which is not so hot as a rule as that of the Isthmus, is remarkably healthful. The dry season, from November to May, is very comfortable, the temperature dropping as low as 14° C. at night.

An interesting point to be emphasized in closing this brief description is that the Brito outlet into the Pacific consists of a cut through the coast in a straight line. The conditions for the defensive organization and the safety of the naval force during its movement and deployment are entirely different from those existing in the Bay of Panama under the appreciable—but not absolute—shelter of the islands of which we have spoken above.

The Americans will therefore be led to create a great breakwater opposite the Brito outlet with two or three exits if possible so as to favor a rapid formation of their ships in order of battle outside.

This brings us to the purely military phase of the question.

Let us suppose that the United States and Japan are at war. This is permissible, since this hypothesis has been the subject of discussion for many years and, as we do not wish to give a special

advantage to the Japanese, even in the nature of a supposition, let us admit that, appearances to the contrary, they will not have the Mexicans for allies in this contest.

On the other hand, we shall also grant that at the moment in which war breaks out, suddenly perhaps, a large portion of the American Fleet is on the Atlantic coast, as is almost always the case at the present time.[3]

This naval force must be transferred to the Pacific before the Japanese fleet can be in condition to oppose the maneuver. Evidently the 1,800 miles the Americans will have to travel from Norfolk, for example, to Colon represents scarcely a third of the distance the Japanese will have to cover; so that if things proceeded in a normal manner, the problem with which we are occupied would be solved ipso facto even with the single outlet which the present canal furnishes. The only remaining anxiety would be what might happen to an American force if, defeated on the high seas by the Japanese and seeking to escape, it was closely pursued by the victorious enemy into the very Bay of Panama. It is evident that in such a case one would find oneself under very unpleasant circumstances.

But not to complicate our discussion, let us say that if Japan took the initiative in the hostilities—which is certainly possible—she would have taken care to have her fleet discreetly cross a good stretch of the Pacific before issuing the declaration of war and also to arrange bases of supply in advance at well-selected points. Absolute secrecy regarding movements and measures of this kind is much easier to the yellow races than to the whites, above all to the impenetrable little Japs as compared with the exuberant Yankees with their great press, ravenous for news.

One may be sure, moreover, that attempts to damage the single waterway will have been wisely organized by the general staff of Tokyo in advance.

What could not one accomplish in this class of operations with intelligent and well-informed subjects of unwavering coolness, devoted to the point of death, and with whom patriotism is after all the true religion?

Finally, and to return to our first hypothesis, it is not going too far to assume that the Americans and Japanese might well meet at Panama, the former pressing on to the last locks of the canal, the latter endeavoring to break down the barrier of exterior defenses

[3] Aside from the fact that the principal navy yards, shipbuilding and repair works, the majority of the dry docks, and finally almost all the large metal-working establishments are located on the Atlantic coast, it must be borne in mind that the United States always has large interests in this ocean. The absorbing question of Mexico and the oil fields south of the Rio Grande, the object of so many quarrels and soon perhaps of conflicts, is also to be found there.

guarding it, in order to destroy the first battleships to pass out and to bottle up the others in this narrow passage for a long time to come.

The scheme of these operations may be outlined in the following manner:

While the Japanese dreadnoughts are engaged in an artillery duel with the batteries on the islands or on Point Chamé the light surface units, gliding along the coast to the east and north of the bay in order to escape being seen by the gunners of the defense, who have great difficulty in distinguishing them against the dark background of the shore, hasten at maximum speed toward the mouth of the canal. At the same time the submarines, taking advantage of their submerged position, pass between the islands or near the point, and therefore steer a more direct course to Panama, will endeavor to reach their goal at about the same time as the destroyers and small cruisers. It would be difficult to obtain a perfect concordance of these two efforts, but complete simultaneousness of the attacks is not absolutely necessary, especially in the presence of an enemy who is divided by inexorable circumstances of time and place.

This simultaneousness of efforts may be accomplished at least by the destroyers or by the submarines in conjunction with the aircraft sent up by the attacking fleet, which, having no other material obstacle to expect beyond that of the inevitable contest which will occur sooner or later with the aircraft of the defense, will chose the best moment for their entrance into action.

It is probable that the advantage in numbers will lie with their opponents, the carrying capacity of the existing fleets in the matter of craft of this nature being still quite limited. The superiority in numbers, however, particularly in the immense free spaces of the air gives no certainty of success. For example, it would be difficult for the aircraft of the defense, unless they possessed a marked superiority in speed, to prevent the enemy planes from approaching to attack the large American units already in the canal—thanks to a turning movement begun in ample time at sea.

These dreadnoughts being unable either to change their speed suddenly, which is very small anyway, or turn out as vessels attacked in the open sea would do in such case, would find themselves exposed to the greatest danger from aircraft bombs. It should also be observed that the bombs which miss the battleships aimed at will either explode in the water alongside them and tear open their sides, similar to a submarine mine, or destroy the banks of the canal [4]

[4] One may well remark that all this applies equally to the Suez Canal and, on consideration, it would appear that England is flattering herself very much if she believes that she could use "the imperial route" in time of war, especially if she were at war with a Mediterranean power.

with a splendid chance of obstructing this waterway and thus bottling up a certain number of ships.

But let us not insist upon this contingency. However well planned in advance on both sides, operations of such great delicacy will always be largely in the nature of chance maneuvers, at the mercy of circumstances and of what we call "the caprice of fortune" through lack of knowledge of the laws which govern the succession of events.

Let us proceed to the second case, that in which the Americans shall have at their disposition the Nicaragua Canal at the same time as the Panama Canal.

Here the scheme of operations must be based first of all upon considerations of a strategic order because, as we have already observed, it is one of the rules of strategy that an army (whether of land or sea forces makes little difference) should never be satisfied with a single avenue of escape in the presence of an enemy who can attack it before it is able to deploy and who, moreover, even if this force has succeeded in taking its positions in front of the defile through which it has just passed, is strong enough to overwhelm it, if it breaks up, since a withdrawal one by one in the disorder of battle is still more dangerous than emerging one by one at the beginning.[5]

But to return to the concrete case which we are considering, the possibility of employing two outlets instead of one would have to be utilized with discretion and also, in the nature of a corollary, the respective geographic positions of these two defiles would have to fulfill certain conditions of distance.

It is clear, for example, that if the American fleet is divided into two equal squadrons in order to enter the Pacific, the Japanese would do well to neglect one of these exits and proceed to the other in full strength so as to engage in battle with the advantage of numbers. They could then return against the second American squadron (the latter well clear of the passage and in good formation, however, having had time to come out) and it is probable that they would again be victorious with their ten dreadnoughts already flushed with victory against eight vessels of the same clcass and no stronger individually than their own.[6]

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[5] One may recall in this connection how Ganteaume's fleet was blockaded for years in the harbor of Brest by the English because he had no other means of egress but the Iroise of which our opponents, who were very strong and hence very bold, retained the mastery. Ganteaume was continuously haunted by the thought that if he entered into a serious engagement with them outside the Iroise or even in the channel itself, he would be confronted with the task of getting all his vessels back through the narrow entrance to the roadstead of Brest in case of a reverse.

[6] Some of the Japanese units are even superior to the more powerful American dreadnoughts in certain respects; for example, the *Mutsu* and *Nagato* are superior to the *Colorado* class in tonnage (33,800 tons instead of 32,000), speed (23 knots instead of 21), caliber of the secondary battery, and number of torpedo tubes. The thickness of the side armor of the Japanese ships is, however, slightly less than that of the American vessels.

But now the importance of the distance between the two outlets comes into effect. In order for the Japanese to thus play the classic and almost invariably successful trick of the maneuver of the inner line, several hours must elapse between the first battle and the appearance of the second portion of the American naval force, however rapid the latter may be.

This would be precisely the case with the new Nicaragua Canal. Brito and Panama are separated from each other by about 600 nautical miles. It will take not less than 30 hours at 20 knots—a very good speed for a combination of vessels—to cover this distance.

In this connection, therefore, the selection of the Nicaragua route by the United States may appear unfortunate from the strategical point of view. The selection of the Darien route, however, would have presented still greater inconvenience, since it is only 75 nautical miles from Panama to the Gulf of San Miguel. This means that both sections of the American fleet might be blockaded simultaneously, for, owing to the tactical difficulty of the one-by-one exit of the vessels at the outlet of the two canals, the Japanese naval force, even if divided into two equal portions, would still be superior in each case to the American force.

The objection will doubtless be raised against what precedes that the Americans would take good care not to divide their fleet into equal parts. Concealed behind the more or less impenetrable curtain of the isthmus and the territory of Nicaragua, they would distribute at will in the two canals, depending upon circumstances, not only their heavy units but also their light ones. There can be no doubt that the Panama exit would seem more suitable for the latter than for the dreadnoughts, for the reason that the attack of the latter by the Japanese destroyers and submarines would be favored, as we have seen, by the configuration of the bay and its islands. It is also probable that the American light units would be able to combat the destroyers and submarines of the attacking force more effectively than would the heavy ships. But—still another but!—let us observe also that the land curtain of which we have just spoken no longer possesses great importance to-day owing to the introduction into the navy of the admirable instrument of discovery represented by aircraft. The very low mean altitude of the dorsal ridge of the isthmus, about 1,000 feet, would favor a reconnaissance by Japanese aviators along the approaches to Colon and in the adjacent portion of the Atlantic. The commander in chief of the attacking fleet would certainly not deprive himself of this precious means of investigation, and his air scouts would be able to inform him in ample time by radio as to the composition of the naval force on its way to one or the other of the two canals or already passing through—information of prime importance.

What a change in the preparation of plans of naval operations as compared with 20 years ago! What complications, what difficulties will arise in their execution and in the employment of weapons which, scarcely born but developing apace, must henceforth be reckoned with in all the concepts of the high command! And, once again, how prophetic was the voice which, at the end of 1913, dominating the clamors of indignation in England herself, announced that submarines and aircraft would drive the enormous dreadnoughts from the seas! They have not yet accomplished this, but they have singularly reduced their efficiency under all circumstances of naval war, pending the time when they can bombard them in their own ports at the very beginning of hostilities.

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NAVY DEPARTMENT
Washington, D. C.

MONTHLY INFORMATION BULLETIN

VOLUME X—NUMBER 3

SEPTEMBER, 1927

DISTRIBUTION

In general: Bureaus of the Navy Department; all force commanders; all commanding officers of capital ships, the larger patrols, destroyers, and submarines

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1927

FOR CONVENIENCE IN ROUTING

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The material for the BULLETIN is largely derived from service sources and its interest and value are correspondingly dependent upon the number and character of the reports received by the Office of Naval Intelligence from our own officers. In this connection the observations of officers afloat are of great value, particularly if the reports rendered are drawn up in accordance with existing intelligence instructions.

While political and economic information is undoubtedly of much use, the collection of military information should come first in the intelligence work of cruising ships.

NOTICE

The contents of this number of the BULLETIN are based upon information received in the Office of Naval Intelligence between July 25 and September 1, inclusive.

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CONFIDENTIAL

O. N. I. MONTHLY INFORMATION BULLETIN

VOL. X SEPTEMBER, 1927 No. 3

ARGENTINA

A. NAVAL

1. New naval units.

Information has been received that owing to the favorable report of the naval commission in Europe on the Tosi type submarines, it is practically certain that the Tosi Co. of Taranto, Italy, will be awarded the contract for three submarines to be built at the Taranto plant. These submarines are to be about 850 tons displacement, double hull type and corresponding to the Cavallini type built for Italy.

There is apparently a great deal of internal politics being played in the attempt to award the construction of these boats. It is understood that this use of interior politics is greatly resented by the Minister of Marine, who desires to award the contract in accordance with the investigation and recommendation of the naval mission headed by Admiral Galindez. It is felt in some circles that should the award for the construction of submarines be given to the Tosi Co., the Bethlehem Steel Co. will have an excellent chance to be awarded the construction of the four gunboats of the "Rosario" type.

The Spanish Government has sold to Argentina the leaders "Churrina" and "Galiano." These were completed last year for the Spanish Navy. They are of 1,650 tons, 37 knots speed.

The Spanish Government has stated that these ships were sold to Argentina at the price per ton fixed by England for similar ships. The destroyers were contracted for with the "Constructora Naval" at a price of ₱16,460,000 each, or $2,890,000 at present exchange of ₱5.70 to one dollar, this being about $1,750 per ton. There results therefore a substantial loss of about ₱7,000,000 per boat which the Government must stand as the decree authorizes the building of two more destroyers to take the place of those sold.

It is believed that this sale was made solely for the purpose of fostering the friendly relations between the mother country and South America. However, this is rather costly propaganda if the Government has to lose over $2,000,000 by the deal.

NOTE.—The above units represent portions of the recent naval program. In addition, there were 3 destroyers, 2 cruisers, and miscellaneous ships.—ED.

B. AERONAUTICAL

1. Aviation accidents at El Palomar.

The fifteenth anniversary of the foundation of the military aviation school was celebrated recently by festivities held at the aviation field at El Palomar. The Navy took part in the celebration and the first group of planes to fly over the field was composed of a squadron of Navy planes of the Petrel type. During one of the maneuvers of this squadron over the field, Ensign Alfredo van Zuylen, who was pilot, was thrown from his plane, his parachute failed to open and he struck the corner of a building and from there fell to the ground, receiving injuries which were almost instantly fatal. The parachute used was of a French type.

Following the naval squadron was an Army bombing squadron, and while this squadron was maneuvering over the field, a group of scout planes of the Breguet type also started their maneuvers. The latter group had an exercise in launching weights with parachutes. While one of the planes was attempting to launch a weight, and before the weight and the parachute were clear of the plane, the parachute opened and became entangled in the rudder of the plane, causing the plane to nose-dive. The pilot managed to straighten out his plane somewhat before he struck the ground, but nevertheless he struck with such force as to completely wreck the plane. Both aviators were seriously injured.

Following the scouting squadron was a bombing squadron, which was to launch small explosive bombs on the field. The commander of this squadron observed that an accident had occurred and that there were many people on the field, so he signaled to his squadron not to drop bombs. This signal was received by all planes apparently except one, which dropped a bomb that struck the ground, rebounded and struck a conscript in the chest, killing him instantly.

General opinion is that all three accidents were caused by the carelessness of the personnel.

FRANCE

A. NAVAL

1. French building program, 1927.

The French building program for 1927 as previously adopted in April, 1927, was modified and represented to the French Parliament as follows: One cruiser, 6 destroyer leaders, 5 first-class submarines, 1 mine layer, 2 gunboats, and 4 coastal submarines.

In France there is no such thing as a class of ships "Authorized but not appropriated for," and there is a question as to whether this program should be considered as "projected" or as "authorized." Insomuch as when a bill is presented to the French Parliament by the ministry it is almost certain of being passed, the above program may be considered as authorized. Passage of this bill was expected to occur prior to the summer adjournment of the French Parliament and great indignation is being expressed at the unpatriotic neglect of the deputies, who were so absorbed by the care of their electoral and private interests that they did not find time to vote for the 1927 program. As they will only meet again in the late autumn, and due to the approaching general election, the outlook for the passage of the 1927 program is decidedly bad, and it will be delayed several months at least.

NOTE.—The original program called for 3 leaders and 4 destroyers, instead of 6 leaders.—Ed.

---

2. Reorganization of the French naval forces.

[There has recently been promulgated by the French Federal Executive a decree reorganizing the French Navy. This decree is based upon the experience of the war and administrative and technical experince since the war. The most important provisions of this decree are given below.]

ORGANIZATION OF THE NAVAL FORCES

1. The naval forces comprise:

(1) The naval and aeronautical forces of the high seas.

(2) The naval forces, air and land, of the coast defense.

(3) The service schools destined for recruiting and training of military personnel.

2. The organization of the command of the naval forces is as follows:

(1) In times of peace—

a. The high sea forces are grouped under the command of line officers who are directly responsible to the Secretary of the Navy.

b. The coast defense forces are placed under the orders of the prefets maritimes who are directly responsible to the Secretary of the Navy. The coast defenses are commanded by line officers of the navy, or by officers of the army; isolated units of the navy, or those forming a separate group, are, as a rule, under the command of line officers of the navy.

c. Service schools, when they do not come directly under the Secretary of the Navy, or the general staff, are placed under the commander of the training squadron, of which they form a part, or under the command of the prefet maritime of the region in which they are actually located.

(2) In times of war—

a. The naval forces are placed under the chief command of a vice admiral who exercises in times of peace the office of chief of the general staff of the navy.

This vice admiral is charged with, in conformity with instructions from the Secretary of the Navy, the carrying out of the directions of the Government, in maritime operations.

b. Under his high authority may be constituted as many commanders in chief as there are different theaters of operations.

The officers appointed as commanders in chief in the different theaters of operations, and responsible for operations in the zone placed under their authority, have under their command all maritime forces, of whatever nature, employed or stationed in their zones.

c. These commanders in chief may also be designated in times of peace.

The services charged with the general maintenance and upkeep of the naval forces are:

Bureau of aeronautics.
Bureau of construction and repair.
Bureau of ordnance (artillerie navale).
Bureau of supplies and accounts.
Hydrographic service.
Bureau of medicine and surgery.
Bureau of yards and docks.
Bureau of navigation.
General accounting and auditing department.

FUNCTIONS OF THE BUREAU OF AERONAUTICS

1. The bureau of aeronautics in its actual constitution is, at one and the same time, a "military organization" and a "service."

2. In its status as a "military organization," charged with the utilization of air forces, it is part of the naval forces and its commanders are subject to the authority of the commander in chief of the naval forces.

3. In its status as "service," it has among its functions:

The supplying of aviation material to the aviation units.

The construction, repair, and upkeep of grounds, hangars, and aviation bases, and all questions concerning tools, appliances, and conditions of aviation bases in conjunction with the bureau of yards and docks.

Instruction and technical training of personnel specialized in aeronautics, in conjunction with the chief of bureau of navigation.

FUNCTIONS OF THE BUREAU OF CONSTRUCTION AND REPAIR

1. The bureau of construction and repair is essentially charged:

a. To construct and repair ships of the navy and, in a general way, all fixed installation of floating material which is not specifically charged to another department.

b. To construct, provide, deliver and repair material for the use of torpedoes and mines, mobile material of ships, and material of naval bases which is confided to them by official orders (in principal, all technical material of an industrial nature, to the exclusion of material of a commercial nature).

To this end it has among its functions:

a. In that which concerns the personnel—

The organization and administration of the corps of naval constructors, technical civilian personnel, and workmen attached to this service.

b. In that which concerns matériel—

The construction, reparation, and upkeep of all buildings and machinery, and all accessory items concerning the running of such establishments.

The construction and supervision of central electric-power stations and their centers of distribution.

FUNCTIONS OF THE BUREAU OF ORDNANCE (ARTILLERY NAVAL)

1. The bureau of ordnance is charged with the construction, maintenance, and repair of all ordnance installations, fire control, ammunition, small arms, and, in general, all material fixed or mobile (except mines, torpedoes, and torpedo tubes) constituting the armament of ships, airplanes, and coast defense batteries.

Organization and administration of the corps of ordnance engineers, the corps of administrative officers of the ordnance department, technical civilian personnel, and workmen attached to this service.

The construction, reparation, and maintenance of buildings and machinery which are necessary to this service, and all accessory items concerning the operation of such establishments.

FUNCTIONS OF THE HYDROGRAPHIC SERVICE

1. The hydrographic service is charged with the preparation of all documents necessary to navigation and the supplying of all ships of the Navy with such documents and nautical instruments.

2. It has among its functions the organization and administration of the corps of hydrographers (hydrographic engineers) and civilian personnel attached to this service.

SUPERIOR COUNCIL OF THE NAVY—COUNCIL OF DIRECTORS

For the examination of important questions, the Secretary of the Navy will convene, when he judges same to be necessary, one or the other of the following councils:

a. For questions relating to preparation for war, and general organization of the navy, the superior council of the navy, the composition and functions of which are fixed by special decree. (See the following article.—ED.)

b. For administrative questions, the council of directors which is composed of the chief of the general staff, the directors and chiefs of services and the chief of the cabinet.

THE GENERAL STAFF OF THE NAVY

FUNCTIONS OF THE VICE ADMIRAL—CHIEF OF THE GENERAL STAFF

1. The vice admiral, chief of the general staff, is charged:

a. With the preparation and utilization of the naval forces in time of war.

b. With building programs.

2. In connection with the functions set forth in paragraph *a* above, the vice admiral, chief of the general staff, has the responsibility of all that directly touches preparation for a maritime war, and particularly the organization of the naval forces, their mobilization, preparation of plans and war problems, movements and training of the fleet.

3. In connection with the functions set forth in paragraph *b*, the vice admiral, chief of the general staff, is charged with planning the general characteristics of new ships, and modernization of old ships, and assuring at the different stages of construction, that the technical solutions adopted by the responsible bureaus fulfill all military necessities.

4. The vice admiral, chief of the general staff, assists the Secretary of the Navy in all questions of primordial interest concerning the fleet, pertaining both to the matériel and the personnel.

SPECIAL FUNCTIONS OF THE CHIEF OF THE GENERAL STAFF IN THAT WHICH CONCERNS PROMOTIONS AND COMMANDS

1. Lists of promotions and designations indicated below are submitted to the chief of the general staff for his action:

a. Promotion to grade of vice admiral and rear admiral.

b. Assignment of vice admirals and rear admirals to duties of their grade.

c. Assignments of captains and commanders to a command or to duty in connection with supervising the construction of a ship.

d. The assignment of officers of all grades to perform special missions.

2. The chief of the general staff addresses directly to the Secretary of the Navy his observations on promotions or assignments.

3. The chief of the general staff recommends directly to the Secretary of the Navy the officers whom he judges apt for appointment to duty with the general staff, as well as those appointed to duty as naval attachés.

ORGANIZATION OF THE GENERAL STAFF

1. The general staff comprises:
The chief of the general staff and his staff.
First bureau (organizations), bureau of navigation.
Second bureau (information), office of naval intelligence.
Third bureau (operations), operations.
Fourth bureau (navy yards and bases, transports, and provisions).
2. The chief of the general staff has under his orders:
a. Technical and military departments.
b. The services—
The service of scientific research.
The historical service.

INSPECTORS GENERAL OF NAVAL FORCES

1. Flag officers designated to exercise, in times of peace, the duties of a commander in chief of a naval force in a theater of operations are, in times of peace, inspectors general of naval forces assigned to such theater of operations.

They receive from the chief of the general staff the necessary orders to enable them to draw up plans of operations, same to be submitted to the chief of the general staff for approval.

GENERAL ATTRIBUTES OF TECHNICAL INSPECTORS

1. The technical inspectors constitute, for the Secretary of the Navy, the means of technical control while leaving intact the initiative and responsibility of the central services.

2. The technical inspectors are under the orders of the Secretary of the Navy.

They fulfill the inspection duties confided to them by the Secretary of the Navy and submit report to him direct.

3. One of the technical inspectors of each corps is the inspector of personnel of said corps.

4. The technical inspectors are:
(1) The inspector general of engineering.
(2) The inspector general of naval construction.

(3) The inspector general of naval artillery.
(4) The inspector general of supplies and accounts.
(5) The inspector general of medicine and surgery.
(6) The inspector general of yards and docks.
(7) The inspector of combustibles and lubricants.

3. Special inspections are confided to vice admirals: these are:
(1) Inspection of hydrographic matters.
(2) Inspection of industrial mobilization.
(3) Inspection for protection against asphyxiating war gas.

DIVISION OF THE LITTORAL INTO MARITIME REGIONS

1. The coast of France, of Algeria, and Tunisia is divided into four maritime regions, each one having for its headquarters a military port, where is located the principal navy yard.

2. The commander in chief (prefet maritime of the region) is the vice admiral residing in the military port. He is responsible for the defense of the littoral and commands the naval forces assigned to the region. As chief of the administration he has under his authority the services of the region.

SUBDIVISION OF MARITIME REGIONS

1. From a military standpoint:

(1) The regions are subdivided into sectors for the defense of the littoral, the number and extent of which are, in times of peace, fixed by special decree.

(2) In times of war the commander in chief of the naval forces may modify, according to the circumstances, the number and extent of the sectors. He can also attach them to such command as he deems necessary.

(3) The commander of a sector has under his orders the naval forces (ships, aircraft, and coast batteries) especially assigned to the defense of the sector.

2. From an administrative standpoint:

(1) The maritime regions may be subdivided into districts, the number and extent of which is fixed by special decree.

(2) At the head of each district (with the exception of the one which incorporates the chief headquarters, directly under the immediate authority of the prefet maritime) is placed a commandant of the navy, who has under his authority the services of the district. He assumes the title of "chief of the district."

(3) The commandant of the navy (chief of the district) may be, at the same time, the chief of the sector of the defense of the littoral.

PRINCIPAL DEPARTMENTS OF THE REGIONS

The essential departments of the maritime region comprise:

(1) Ships, units, and military formations, certain of which are assigned to the defense of the littoral.

(2) The services functioning either in the chief port (headquarters) or in other ports of the region.

FUNCTIONS OF THE PREFET MARITIME

1. The prefet maritime is essentially charged:

With the defense of the littoral of his region.

With the chief command of ships, units or maritime formations in the region, or whomsoever or whatsoever is stationed in the region, that does not come under the authority of another commander in chief.

With the command of all the services of the region (local departments of diverse large services, mobilization, recruiting, administration of naval reserves, etc.), of which he coordinates action with a view to satisfying the needs of maritime forces.

2. He is chief of the department of maritime justice of the region.

3. He is qualified to settle, with the concurrence of the administration of "inscription maritime" (board of trade for mariners), certain questions fixed by laws and decrees concerning seafaring personnel, fisheries, and water fronts in general.

4. He is the local delegate of the Secretary of the Navy, and responsible to him for the efficient state of all organizations at the navy yard, or in the region (with the exception of the particular responsibilities inherent to the administrative autonomy of the services) and will take, in this respect, all requisite measures, required by the circumstance, within the spirit of the regulations.

DEPARTMENTS AND SERVICES OF THE CHIEF MILITARY PORT

1. A chief military port comprises, or may comprise:

(1) The services—

Department of bureau of construction and repair.

Department of naval artillery.

Department of yards and docks.

Department of medicine and surgery.

(2) Military organizations.

FUNCTIONS OF THE MAJOR GENERAL

1. The major general of the chief military port is:

(1) The commandant of the navy yard.

(2) Military director of services in the navy yard.

2. The commandant of the navy yard (comprised therein are establishments known as annexes) is responsible for the conservation, surety, and proper guard of the yard.

3. As military director of services, he is charged:

a. With coordinating the relations of the services of the navy yard, one with the other, and with the units of the maritime forces, with a view to satisfying the various needs of these units.

b. With assuring the prompt putting into commission of ships, and preparation of all material for the commissioning of the respective ships. He approves all requests for repairs, fixes the degree of urgency, and keeps posted on the progress of work.

c. With verifying the condition of stocks on hand and controlling such stocks so that the matériel furnished by the services fulfills the needs of ships' armament, reparations, provisioning, and mobilization of the units and military formations.

4. The directors, or chiefs of services, and commanding officers of ships in navy yards are placed under his orders:

a. In all that concerns the fulfilling of the needs of the naval forces in supplies, provisions, repairs, and odd navy yard jobs; also policing and surety of the yard.

5. In times of war, in order to relieve as much as possible the prefet maritime from his administrative functions, the directors of the services are placed entirely under the orders of the commandant of the navy yard, who enjoys all rights to carry on functions which are not specifically reserved to the prefet maritime by law. The commandant of the navy yard will keep the prefet maritime informed of all workings of the services and will receive, direct from that officer, all orders relating thereto.

QUESTIONS TO BE SUBMITTED TO THE SECRETARY OF THE NAVY

There are submitted to the Secretary of the Navy:

(1) Questions of policy—

All important questions involving a principle which has not been fixed by a former decision of a Secretary of the Navy.

All projects or engagements involving expenditures of funds in excess of those allotted by the appropriation, except in major cases of extreme urgency.

(2) Questions of work—

All projects of modification, all new work, and important reparations resembling new work, beyond the jurisdiction of the local authorities (except in cases of special delegations given by the Secretary of the Navy in each case).

(3) Questions of contracts—

Purchases in the open markets and expenditures outside the competence of local authorities.

The approval of purchases and contracts.

(4) Questions of matériel—

When the deliveries pass the limits fixed by regulations, and the demands are of a character of sufficient importance to be submitted to the Secretary of the Navy (except in urgent cases, when a complete account of transactions will be rendered).

All condemnations, losses, or rejections, the importance of which exceeds the competence of the local authority.

(5) Rewards for life saving or other meritorious deeds.

(6) Disciplinary and judicial matters, when the case exceeds the competence of the local authority.

(7) Questions of litigation—

All questions of life saving and rescues at sea, collisions, damages, accidents, etc., the importance of which exceeds the competence of the local authority or, regardless of their importance, when the case in question can not be settled amicably by the local authorities, or when confirmation of judgment is necessary by higher competent authority.

(8) Questions of buildings or grounds: The purchase, exchange, and sale of grounds, buildings, and, in general, all that is liable to increase or decrease the property of the Government.

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3. The high command and the supreme council.

[As a supplement to the previous article, there are given below extracts from a supplementary decree defining the status of the officers exercising the high command and those composing the supreme council.]

THE HIGH COMMAND

ARTICLE 1

1. The vice admiral, chief of the general staff in times of peace, is designated to exercise, in times of war, the duties of commander in chief of the French naval forces and assumes, in conformity with instructions from the Secretary of the Navy, and following the policy of the Government, the control of maritime operations.

2. Upon mobilization he assumes the title "Commander in chief of the French naval forces."

ARTICLE 2

3. Two vice admirals receive, in times of peace, an annual appointment of command authorizing them to excerise in times of war the chief command of the large maritime regions encircling the principal theaters of operations as planned by the general staff: North Sea, English Channel, and Mediterranean Sea.

4. Operations taking place in the Atlantic Ocean do not, however, all come under the first-mentioned theater of operations; the exact limits of which will be fixed, depending upon the circumstances, by the commander in chief of the French maritime forces.

5. Upon mobilization, these two vice admirals take, respectively, the titles of: "Commander in chief, Northern naval forces." "Commander in chief, Mediterranean naval forces."

6. They are, in times of peace, inspectors general of naval forces based in their theater of operations; that is, the naval forces of the high seas; patrol forces, and in fact all elements fixed or mobile, land, sea, or air, assigned to the defense of the littoral.

ARTICLE 3

7. A vice admiral receives, in times of peace, an annual appointment of command to exercise in times of war, the chief command of the defenses of the littoral of the II, III, and IV maritime arrondissements (districts).

8. Upon mobilization he assumes the title of "Commander in chief of the littoral of the Atlantic."

9. He is, in times of peace, inspector general of the naval forces assigned for the defense of these three arrondissements and carries the title of "Inspector general of the littoral of the Atlantic."

ARTICLE 4

10. The commanders in chief of the naval forces of the high seas, in times of peace, come directly under the orders of the Secretary of the Navy. In times of war they come under the orders of the commander in chief of the naval forces in the maritime region in which they operate; should they operate outside of the principal theater of operations, they come under the orders of the commander in chief of the French naval forces.

ARTICLE 5

11. The patrol forces are commanded in each one of the seas as follows: Mediterranean; English Channel; North Sea; Atlantic Ocean; by flag officers designated in times of peace.

12. Upon mobilization these flag officers assume the title of "Commander of patrol forces" of the sea in question. The first mentioned flag officer (Mediterranean) comes under the orders of the commander in chief of the Mediterranean forces; the other three flag officers come under the orders of the commander in chief of the northern forces.

ARTICLE 6

13. From a military standpoint as well as an administrative one, the littoral is divided into six maritime arrondissements (districts), the limits of which is fixed by special decree:

First arrondissement, Cherbourg.
Second arrondissement, Brest.
Third arrondissement, Lorient.
Fourth arrondissement, Rochefort.
Fifth arrondissement, Toulon.
Sixth arrondissement, Bizerte.

14. A vice admiral, carrying the title of "Prefet maritime" of such an arrondissement, is placed at the head of the I, II, V, and VI arrondissements.

15. A rear admiral, carrying the title of "Prefet maritime" of such an arrondissement is placed at the head of the III and IV maritime arrondissements.

16. In times of peace the vice admirals, prefets maritimes, carry the title of "Commander in chief."

17. In addition to functions assigned them by former decrees, the vice admiral, prefet maritime, is charged with the defense of the littoral of his arrondissement against the enemy afloat, when debarking or after having debarked. He has under his authority all the elements and units necessary for this defense.

18. The vice admiral, prefet maritime, of the II arrondissement is charged, under the same conditions, with the defense of the littoral of the III and IV arrondissements.

19. In times of peace:

(*a*) The vice admirals, prefets maritimes, come directly under the authority of the Secretary of the Navy.

(*b*) The rear admirals, prefets maritimes, of the III and IV arrondissements, come directly under:

The vice admiral prefet maritime, of the II arrondissement, in all matters concerning the defense of the littoral, and under the Secretary of the Navy for all other matters.

20. In times of war:

(*a*) The vice admirals, prefets maritimes, continue to come under the direct orders of the Secretary of the Navy for all questions of a technical or administrative order which do not concern actual operations; they come directly under the orders of the vice admiral, commander in chief of the maritime forces of their region, for all questions concerning operations.

(*b*) The rear admirals, prefets maritimes, of the III and IV arrondissements, come directly under:

The vice admiral, prefet maritime, of the V arrondissement, for all matters concerning operations on the littoral, or in the zone adjoining their arrondissements.

The vice admiral, commander in chief of maritime forces of the North, for all that which concerns operations, other than those of the littoral or of the zone adjoining their arrondissement.

The Secretary of the Navy for all questions of a technical or administrative order which do not concern actual operations.

21. The prefets maritimes reside, in times of peace, in the chief military port of their arrondissement; in times of war they establish eventually their post of command in one of the locations previously planned or necessitated by the circumstances.

ARTICLE 7

22. From a military standpoint, the littoral of each arrondissement is divided into maritime sectors which are, in principal, commanded by flag officers or captains.

23. Supplementary maritime sectors may be created, in times of war, depending on the circumstances.

24. The limits of these sections are fixed by special decree.

25. The commandant of a maritime sector comes directly under the prefet maritime of the arrondissement of which his sectors forms a part.

26. The rear admirals, prefets maritimes, of the III and IV arrondissements, are, in each case, commandants of the maritime sector constituted by their arrondissement.

27. For all military questions, relative to the organization and preparation of maritime effectives assigned to the defense of the littoral, the vice admiral, prefet maritime, is assisted by the officer commanding the maritime sector of the chief military port of the arrondissement.

28. The vice admiral, prefet maritime, of the II arrondissement, is assisted, under the same conditions, by the rear admirals, prefets maritimes, of the III and IV arrondissements, in all that which concerns the maritime effectives assigned, respectively, to the defense of the littoral of each arrondissement.

ARTICLE 8

29. The naval bases, spread over a maritime arrondissement, other than the chief military port, are commanded by flag officers of the navy, who carry the title of "Commandant of the Navy at * * *."

30. These officers command, in principal, the maritime sector comprising their base.

31. They come directly under the prefet maritime.

SUPERIOR COUNCIL OF THE NAVY

ARTICLE 9

32. The superior council of the navy is a consultative organization specially charged with furnishing data on questions pertaining to war at sea and the defense of the littoral.

33. The composition of this council is as follows:

(*a*) Members having a deliberate voice:

The Secretary of the Navy, president.

The vice admiral, chief of the general staff, vice president.

Two vice admirals designated to exercise, in times of war, the command of the naval forces of the North and the Mediterranean Seas.

The vice admiral, commander in chief of the fleet.

Two vice admirals chosen by the Secretary of the Navy.

(*b*) Members with a consultative voice:

The flag officer, commanding the "Ecole de Guerre Navale."

The assistant chiefs of the general staff of the navy.

34. These latter flag officers may act as recorders of the council.

35. An officer with the rank of captain will perform the duties of secretary of the council.

36. The members of the council are designated at the end of each year by special decree.

ARTICLE 11

37. The chief of the general staff of the army and one other member of the superior council of the army, designated by the Secretary of War, are attending members of meetings of the council, and have a deliberate voice, without the right of vote.

38. In all cases, when the superior council of the navy is convened to give its advice on questions of interest to the war department, the two generals, attending members of the council, are admitted with right to vote.

39. Such fact is, therefore, mentioned in their orders appointing them members of the council.

ARTICLE 12

40. The council may give a hearing to officers or other persons which it sees fit in its examination of questions submitted to it.

ARTICLE 13

41. The consultation of the superior council of the navy is obligatory on questions, viz:

(*a*) The general organization of the navy.

(*b*) Procedure of recruiting, formations, and utilization of commissioned and enlisted personnel.

(c) The general organization and defense of the littoral.

(d) Naval building programs.

(e) The general characteristics of the different units to be laid down, including airplanes and dirigibles.

(f) The combat tactics of the naval forces.

(g) The creation, extension, or suppression of navy yards, naval bases for the fleet, and coast-defense works.

42. The superior council may, in addition, be consulted on all questions that the Secretary of the Navy deems necessary to submit to it.

ARTICLE 14

43. The superior council is convened as often as is necessary to examine matters submitted to it.

44. The President of the Republic can convene the superior council of the navy and sit as its president as often as he deems it necessary. In this case the Prime Minister is always summoned to be present at the meeting.

45. The Secretary of War may also be summoned to attend the meetings of the council.

46. The members of the Government summoned to sit on the council have a deliberative voice therein without, however, taking part in the voting.

47. Minutes are kept of the deliberations of the council.

ARTICLE 16

51. The Secretary of the Navy acts and is guided by the advice and recommendations of the superior council of the navy.

ARTICLE 17

52. The Secretary of the Navy may confide to flag officers, members of the superior council of the navy, missions of inspection.

53. Acting as delegates of the Secretary of the Navy, the members of the superior council of the navy have powers of the most extended order in carrying out their missions.

THE GENERAL STAFF OF THE NAVY

ARTICLE 19

55. The general staff of the navy is placed, in times of peace, under the authority of the chief of the general staff of the navy, vice president of the superior council of the navy.

56. This officer has the responsibility of all matters relating to the preparation of naval warfare and in particular to the organization of the naval forces, their mobilization, the preparation of war plans, and the movements and employment of the fleet.

ARTICLE 20

57. The chief of the general staff of the navy is assisted in his functions by flag officers, assistant chiefs of the general staff.

58. The chief of the general staff of the navy and the two assistant chiefs of the general staff are appointed by official decree.

59. The partition of the bureaus and services of the general staff, between the two assistant chiefs of the general staff, is fixed by orders of the Secretary of the Navy.

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4. Reorganization of submarine flotillas.

[*The following are extracts from a recent Navy Department "decree" relative to new submarine organization.*]

ARTICLE 1

The submarines of the fleet are grouped in squadrons. These squadrons may be attached to a naval force of the high seas or attached to the coast defense units of France, Algeria, Tunisia, and the French colonies.

ARTICLE 2

All submarine squadrons are normally assigned for the purpose of upkeep and supplies a shore or floating base.

The Secretary of the Navy designates, in times of peace, the normal base for each submarine squadron.

ARTICLE 4

The commandant of a submarine base for one or more submarine squadrons is responsible for provisioning and repairing the ships of the squadron.

ARTICLE 5

Officers assigned to duty on board submarines, either as commanding officers or watch officers, must fulfill the physical and technical conditions required by navy regulations.

ARTICLE 6

The assignment of enlisted personnel to submarine duty is partly by choice and partly by general detail.

Men detailed to duty on board submarines must pass a thorough medical examination; if they are found physically unfit for this duty, they are returned to general detail.

An additional complement is allowed to each submarine squadron to collaborate in the daily routine on board submarines during their stay in port, with a view to filling in any vacancies in complement which may occur.

ARTICLE 7

The submarines of a squadron may be in "commission," in "special commission for trial runs," or in "reserve."

Submarines in course of construction are not incorporated in a submarine squadron.

ARTICLE 9

The trials of submarines are conducted and directed under the same conditions as surface craft: i. e., by a commission, the composition of which is fixed by special orders from the Secretary of the Navy.

ARTICLE 10

The rules applied to surface craft under construction are applicable to submarines.

The officer who oversees the construction work of a submarine is under the authority of the commandant of the port of construction or the port wherein the trials are to take place; but if a submarine squadron is based in that port, he routes all official correspondence via the submarine squadron commander.

The latter transmits it, by indorsement, to the commandant.

ARTICLE 11

Submarines placed in reserve are under the orders of the commandant of the port wherein they lie. The submarine squadron commander of the district concerned is in immediate command.

ARTICLE 15

Submarine flotillas may be constituted by uniting, under the orders of one commander, several submarine squadrons.

The commandant of a submarine flotilla has control of all which concerns the preparation of his flotilla for war and execution of orders relative to operations.

He coordinates the movements of squadrons and determines the exercises which they must carry out.

He has not, in principle, any administrative duties.

The Secretary of the Navy is charged with the execution of the present decree.

ARTICLE 16

NOTE.—The recent great increase in French submarine forces has necessitated the above reorganization. Since the Washington conference France has laid down or authorized and appropriated for 48 submarines of from 600 to 3,000 tons.—ED.

GERMANY

A. NAVAL

1. Activities of the German Navy since the war.

[*Source: German press*]

The subdivision into the North Sea naval station in Wilhelmshaven and the Baltic station in Kiel is a legacy from pre-war times. Each station commandant has jurisdiction over the coast fortifications, the naval artillery divisions, the coast communications, etc., of his district. Added to the above, the North Sea station has jurisdiction over the inspection of naval artillery, the naval arsenal inspection, and the Altenwalde firing ground as well as the beacon, warning signal, and pilot office of the Jade, the geodetic survey ship *Meteor*, and the fishery protection ship *Ziethen*. Under the Baltic station are the inspection of naval training, torpedo, and mine inspection, and the naval commissioner for the Kaiser Wilhelm Canal. The naval artillery divisions, which were formerly known as coast guard divisions and formed from the infantry divisions of the marine brigades, were given this new designation on October 1, 1926, for the sake of tradition. These divisions are stationed in Kiel (I), Swinemuende (III), Pillau (V), Wilhelmshaven (II), Cuxhaven (IV), and Emden (VI). These divisions are intrusted exclusively with coast defense and, according to the new regulations, no longer serve in the fleet. The skeleton corps of the ships (permanent staff) are the successors of the naval brigades and now have a much broader field of work than formerly, being in charge of recruiting as well as the training of recruits (with the exception of the naval artillery recruits).

The overhauling of the ships as well as the special training work afloat have been completed, and preparations are now being made for the maneuvers. The *Schlesien*, the new flagship of the North Sea forces, will not participate in the training work, but has been placed at the disposition of the artillery testing command for the testing of the newly installed artillery. During the month of March the line ships and cruisers were engaged in special training work as well as target practice (torpedoes and ship's artillery), and during the last days of March made preparations for scheduled foreign cruises. The flotillas were engaged in training work and completed some of their artillery practice.

The battleship *Hannover* has been transferred to the reserve, and two coal-burning torpedo boats have been exchanged for two modernized oil burning torpedo boats. The second new construction of this series is the torpedo boat *Greif*, launched in Wilhelmshaven on March 15. The two old torpedo boats *T–168* and *T–175* have been stricken from the list of the naval vessels. Another vessel has been put into commission for survey purposes.

After its conversion to flagship of the North Sea forces to replace the *Hannover*, the *Schlesien* undertook her trial trips in the Baltic, and after their completion returned to Kiel. The modernizations show the consolidation of the two forward smokestacks, an improvement which to a certain degree protects the bridge from soot. A further improvement was the arrangement of the surface torpedo armament, consisting of one tube on each side on the battery deck forward and aft of the heavy turret. The subsurface torpedo armament has been eliminated. Wireless antenna are located forward on the upper bridge behind the mast and abaft of the control station.

The Murman expedition of the fishery cruiser *Ziethen* was the result of a stipulation in the German-Russian commercial treaty of October 12, 1925, whereby the biology of the fish life in the waters of the northern coast of Russia was to be the subject of combined scientific study on the part of Germany and Russia. In return for her scientific work in this connection, Germany was accorded permission to fish with German fishing steamers within a certain district whose rich supply was formerly reserved exclusively for Russia. The details of this research expedition were drawn up in the spring of 1926 by the German Scientific Commission for Oceanographic Research, after which the Navy Department dispatched the *Ziethen* for this work for a period of about two months. The work, which was to extend from North Cape to Cape Kanin and the entrance of the White Sea, consisted in hydrographic investigations of the sea water as to its chalk content as well as in biological investigations. The scientists taking part in the work were Professor Schulz, of the German Meteorological Institute, and Doctor Wulf, of Helgoland, with the subsequent collaboration of Russian scientists in Alexandrowsk.

The World War not only interrupted the survey activities in domestic waters, but it also put a stop to the training of the necessary personnel for this work. This was the reason that the difficult survey work of the German Bight which was begun in 1914 could only be resumed in 1923. The vessels available for this work are the *Panther* (former gunboat) as well as a number of sounding boats. During 1923, soundings were made of a zone of approximately 2,500 square miles northwest of Helgoland between latitudes 54° 10′ and 55° and

east of 6° 30′ east longitude, up to the 20-meter line of the coast district, the survey work furnishing valuable material for the rectification of the charts. One notable point in connection with the work was that the 20-meter depth line was found to lie about 4 miles more to coastward. This is not to be laid to an actual alteration of the depth, but rather to improved methods of rectifying soundings to the chart zero (mean spring low water). At the time of the last survey work, in 1910, the soundings on the 20-meter line were rectified directly on the tide-gauge registrations of Hoernum and Helgoland, while in this work, Professor Merz's (of the Oceanographic Institute) newly constructed zone-of-rise line and the tidal-hour line were used for the first time. Besides this work, in 1923 certain coast districts and island waters as well as the estuaries were sounded, and in the Baltic a part of the Adler Shoals was gone over very thoroughly, and a new shallow place was found measuring only 5.1 meters, the surrounding water being from 8 to 10 meters deep. During the late autumn, which is not favorable for survey work, the survey ship continued to be used for navigational training work, while in winter courses in surveying were given for officers and noncommissioned officers. In the spring of 1924 the above-mentioned survey work in the North Sea was resumed, covering the western coast of Schleswig-Holstein north to Schmaltief, including Norderhever, then south to the deep water of the Suederpiep, the Mittelhever as far as Husum, the Eider estuary, and the Norderpiep as far as Russenloch. As far as regards navigation and surveying technic, this is the most difficult district on the German coast owing to the numerous shoals and the strong tidal currents and the great distance of the landmarks which are so necessary to survey work and which are only visible in very clear weather.

In 1924 the *Panther* was engaged in current observations in the North Sea (carried out in cooperation with all the countries bordering on the North Sea according to a prearranged program) and also in the determination of the terrestrial magnetic elements in the Baltic. In 1925, for the first time since the war, the beacon and pilot office of the Jade was called on to assist in this work with the vessels and personnel at its disposal, it being intrusted with the district of the inner and outer Jade with which this personnel is particularly familiar. The survey work in the North Sea was continued in the succeeding years. Among other important things accomplished in the Baltic there should be particularly mentioned the surveying of the southern portion of the Kurisches Haff, which had not been done since 1875. The *Panther* was placed out of commission the end of 1926, probably definitely, as the *Meteor* is now available for this work and its surveying activities of the past five years attracted less

notice than the "*Panther* leap" to Agadir in 1911 when Germany demonstrated her power to France and England. At present there are two sounding boats available for this work until the *Meteor* is again ready. Owing to the limited personnel permitted Germany and the fact that the new constructions must be manned from this personnel, it is not practical at the present to have two survey ships in commission at the same time.

NOTE.—The "Meteor" has only recently returned from an extended scientific cruise to the South Atlantic. The most important activity of the German Navy in the last three years has been the extensive flag showing cruises which her cruisers have undertaken.—ED.

B. MISCELLANEOUS

1. Growth of German military and naval estimates.

There has been a renewal of French alarm at the reported growth of military and naval appropriations in Germany. That there is some justification for the French view is now shown by the schemes revealed in the German publication Menschheit, and still more by the last report issued by the agent-general for reparations, who drew attention to the fact that burget expenditure for the army and navy had risen since 1924 from £22,900,000 to an estimated £35,050,000 for the current financial year.

French critics point out that the expenditure on the German Army of 1913, which numbered more than 700,000 men, including reserves, was £49,250,000, and that taking the present value of the mark at 65 pfennigs and allowing for the fact that the German Army of 100,000 men is not permitted to have any reserves, heavy artillery, or airplanes, the present expenditure should not exceed £12,500,000; yet the German Army this year will cost £24,050,000.

The London Times points out that the German Navy is one-tenth of its pre-war size, when the naval budget was 476,000,000 marks, of which 222,000,000 were for construction, and French critics declare that, instead of 220,000,000 marks estimated for the current financial year, 113,000,000 should be an outside figure. The Echo de Paris asks why Germany should need a larger contingent of naval cadets than France and why in a total personnel of 14,914 officers and men the proportion should be 4,979 officers to 9,935 men, or roughly one officer to every two men.

Further evidence of German military activity is provided in a communication from the Belgian Government to the Germans. The Reichswehr, which, according to the Versailles treaty, should be composed of professional men on long-term service, dismisses a large number of men from time to time on the grounds of ill health or

"special intellectual ability." The men so liberated are maintained on a special roll and furnished with instructions "in case of urgent convocation."

The Reichswehr has by this means organized a reserve exceeding 200,000 trained men, most of them qualified to serve as noncommissioned officers. The Belgians charged also that the staff of the Reichswehr continues to cooperate with patriotic organizations and sports clubs in spite of protests. A further charge is that the Reichswehr, by ordering equipment and munitions four times in excess of actual requirements, is able to equip these men fully at any time.

NOTE.—In connection with the above subject, Germany has threatened to take the not illogical stand that, since the treaty of Versailles makes her disarmament only the prelude to general disarmament, if the Allies do not attempt disarmament, she is, therefore, not bound by the armament stipulations of the treaty. So far she has only indirectly broached this theory, but if the signatory nations continue their large armaments and make no attempt to reduce same, Germany will certainly present the above view before the league; and, what is more important, she will have the support of the numerous small nations in this presentation. The next session of the Preparatory Disarmament Commission (which ended in failure last May) is scheduled for November, and Germany and the small powers will do all possible to see that this is not postponed as the Allies undoubtedly desire.—ED.

GREAT BRITAIN

A. NAVAL

1. Entry of naval cadets, Royal Navy.

The following table shows the number of naval cadets entered in the British Navy for the year ending May, 1927:

Type of cadet	Date of entry		
	September, 1926	January, 1927	May, 1927
Dartmouth	50	51	54
Special entry (executive)	10	15	(1)
Special entry (engineering)	28	20	(1)
Entries from mercantile marine training establishments	5	1	7

[1] No entry.

The wastage among these entries prior to reaching commissioned rank averages about 14 per cent.

About four Dartmouth cadets per term volunteer for engineering duties, or a total of 12 per year. Cadets from the mercantile marine training establishments are entered primarily for executive duties,

and it is anticipated that only a very few will transfer to engineering duties.

Thus, from the past year's entries at Dartmouth it is expected that about 121 will be commissioned in the executive branch and about 12 in the engineering branch. The corresponding figures for the special entry cadets are 22 for the executive branch and 41 for the engineering branch. Assuming that none of the cadets in the mercantile marine training establishments transfer to engineering duties, the total addition to the commissioned executive branch would thus be 156, and to the engineering branch, 53.

Nine ratings were promoted to acting mate on December 1, 1926, and it is expected that five will be promoted to acting mate (E) on July 1, 1927.

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2. *The new "county" cruisers.*

[*Source: British press*]

The first five cruisers of the 10,000-ton "county" class, which were authorized by the Labor administration in 1924 and begun toward the end of that calendar year, are now approaching completion. After these have been completed and their trials run they are to proceed to the China station, to which command they have been assigned.

There are many points of interest about this type, in regard to which fairly complete details are now available. So far as tonnage and armament are concerned, the design was governed by the Washington Treaty, which restricts the displacement to 10,000 tons—exclusive of fuel and reserve feed water—and the caliber of the heaviest guns to 8 inch. Within these limits the late director of naval construction, Sir E. T. d'Eyncourt, who prepared the design, has, as we think, produced a very successful and efficient type of ocean cruiser, and one that fulfills the special requirements of British naval policy. The following dimensions of the class are taken from the current Navy estimates: Length, 590 feet; breadth, 68 feet 4 inches; draught (at standard displacement), 16 feet 3 inches; standard displacement, 10,000 tons. The hull differs from that of previous British cruisers in being flush-decked, and the freeboard is conspicuously lofty. These features should insure a high degree of seaworthiness, in contrast to the majority of our present cruisers, which suffer from their low freeboard and are notoriously wet and uncomfortable in a seaway. Bulges are fitted as a protection against torpedo attack. Other protective details are still conjectural, but it is reported that a 4-inch vaulted deck is worked over vital parts, and there is obviously some armor on the gun positions, though it can not be of great thickness.

The ship is propelled by four sets of geared turbines, each developing 20,000 shaft horsepower, so that under a full head of steam the collective output is 80,000 shaft horsepower, operating four screws. The designed speed is 31½ knots in smooth water with a clean bottom. This is at least 1½ knots below the speed of contemporary foreign cruisers, but there were doubtless good reasons for accepting a comparatively moderate velocity. It may be that when the ships are at sea under service conditions they will prove little, if at all, inferior in speed to any other cruisers afloat. The uptakes from the oil-burning boilers are led into three funnels of unequal girth, but in spite of this the profile of the ship is symmetrical and pleasing. An exceptionally wide radius of action is guaranteed by the oil-fuel supply of 3,400 tons, which exceeds that of the *Raleigh* class, hitherto our largest cruisers, by 1,250 tons. It is clear that the displacement of the ship, with bunkers and water tanks filled to capacity, will be over 13,500 tons.

The main armament is extremely formidable, comprising, as it does, eight 8-inch guns, paired in turrets on the center line, two forward and two aft. Guns of this caliber are new to the British Navy, 40 years having passed since an 8-inch weapon was mounted in British warships. It is of interest to note that the armament of the *Berwick* is practically similar to that of the German cruisers *Scharnhorst* and *Gneisenau*, which were sunk in the Falklands action. Each carried eight 8.2-inch guns, four being mounted in twin turrets and four in single casemates on the broadside. Only six guns, therefore, could be fought on the beam, whereas the *Berwick* can train her eight guns on either broadside. The ballistics of the new 8-inch guns are confidential, but it is certainly of a high-velocity model. Guns of this caliber listed in the ordnance tables of British manufacturers discharge a projectile weighing 250 pounds—that is, 50 pounds heavier than the 7.5-inch mark and 150 pounds more than the 6 inch. A full broadside from the *Berwick* should thus weigh 2,000 pounds.

The twin gun houses are very roomy, the two guns are widely separated, the ports appear to be cut for a high angle of elevation, and a large base range finder is fitted to every gun house. Particulars of the secondary armament and the torpedo installation have yet to be released.

The bridge work is of a very elaborate nature. In it are housed the gun-control tower, the director towers, spotting platforms, and all the gear necessary for fire control, besides the usual navigating and signalling stations. This imposing bridge structure has the obvious disadvantage of offering a large area of target to shell fire. The heavy tripod which has long been a familiar feature in our cruisers has disappeared, its place being taken by a slender pole mast carrying light signal yards. The main mast is a pole of the same

height. The completion of the *Berwick* and her four sisters brings a much-needed reinforcement to our cruising fleet. Including the two Australian ships, there are now 13 cruisers of the 10,000-ton class under construction in this country, and a further unit is to be ordered during the current financial year. The cost of the *Berwick* is returned in the navy estimates as £1,853,000, including guns.

NOTE.—The large "gun houses" or turrets and the wide separation of guns in secondary gun turrets are characteristics of recent British warships, including the Rodney and the Nelson. This may be the result of German design influence. During her trials, the Berwick, one of the 10,000-ton class, maintained a speed of 32.35 knots.—ED.

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3. Singapore naval base.

The naval base is actually some distance removed from the city and port of Singapore. The island from which this famous commercial and shipping emporium takes its name is 27 miles long by 14 miles wide, with an area of roundly 206 square miles. The city and port is located somewhat east of center on the southern coast of Singapore Island. Directly north across the island, and facing the mainland of the Malay Peninsula, is the base in the district of Seletar. The distance by land from Singapore city to the naval base is approximately 15 miles over a motor road asphalted for part of its length. This road runs for miles through areas of rubber plantations or semijungle. The isolation and absence of houses is such that on certain stretches of the road brigands operate occasionally and with apparent safety—to themselves.

The original base reservation consists of about 2,500 acres of rubber plantations and mangrove swamp. It occupies much of the coast of the district of Seletar. The shore of the mainland opposite (territory of the Sultanate of Johore) comes as close as a half mile to Singapore Island and recedes about 4 miles as the straits widen out towards the China Sea. The straits are considered to extend about 10 miles from the base to the open sea and about 4 miles in the opposite direction from the base to the Johore causeway. This causeway was completed two years ago, and blocks passage of the straits from east to west, and vice versa, excepting for small native vessels which can work through narrow locks at the Johore end. The entire distance by water from the base at Seletar to Singapore Harbor is about 30 miles.

With the original reservation on Singapore Island, and an area of unknown acreage across in Johore, the base is stated to have a frontage of 6 miles on the straits. During the current year there have been important additions (stated to total 355 acres) to provide for proposed adequate fortification and other protection of the

eastern and only water entrance to the base. These additions include areas on the small islands of Pulau Ubin, Pulau Tekong, and Pulau Tekong Kechil in the straits, and certain beach stretches of the districts running eastward from Seletar to and including Changi.

The island of Pulau Ubin provided granite for the Johore Causeway and will, presumably, provide some for use in the base construction. Almost opposite Seletar on the Johore side, and not far from the water, is another considerable deposit of granite which will be used. This deposit forms a considerable and sufficient elevation to permit the use of an aerial cable to slide the required rock material across the straits to the base site.

Proceeding westward up the straits from the base there is a cul-de-sac, formed by the Johore causeway. There is no through approach by water from this side, but a track is being constructed between the base and the main line of the Federated Malay States Railway where it crosses the causeway. This railway spur line, about 4 miles in length, is so far only single track and was begun near the end of 1925. It is nearly completed, but there has been considerable difficult work in its construction. Bridges had to be built, jungle and swamp land had to be cleared and filled, and certain stretches of sea wall had to be constructed to protect the straits side of the roadbed.

Approaching the base by motor road from Singapore a white mark on a rubber tree at the roadside marks the beginning of the reservation. When well within sight of the water of the straits the road enters a small cleared area inclosed by iron fence. Here are recently completed temporary quarters for the staff now at work—stated to be about 30 officers of civilian rank—and a row of one-story office rooms. While the construction is considered temporary, cement and brick have been used and the quarters may easily be servicable for 10 or a dozen years. These quarters are on an elevation pleasantly overlooking the straits and opposite mainland of Johore. Passing through a second iron fence and paralleling the straits—there is only one hefty sikh policeman as a guard at either gate mainly to protect the privacy of the dwellings and to check up on intending visitors—the road runs less than a mile to the water edge and out upon a narrow jetty or pier of apparently not more than 50 yards in length. The pier is, however, of sufficiently solid construction to support a traveling crane and the branch railway from Johore Causeway which terminates here. On the left as one starts out on the pier are three or four small machine shops strung along the temporary railway, and on the right stretches the baked mud and débris of a recently drained mangrove swamp along the shore. About a half mile directly back from the water front, on high land cleared of rubber

trees, are the temporary quarters for coolie labor. Various odds and ends of construction material in no great quantity, including dredge buckets under repair, are piled about for use in the preparatory work now going on.

Just off the pier clanks and groans the great dredger brought out from England for this work. This dredger is stated to have been built especially for the construction of the Southampton docks and to be able to dig deeper than any other craft of its type in the world. Four large-size hopper barges, self-propelled, appear to complete this equipment. The dredging to 70 feet for the new floating dock now under construction in England is practically complete. There will, of course, be much other dredging to be done, but it appears that the site of the floating dock is either complete or nearly so.

Several boring machines are also scattered here and there and are stated so far to have completed over a hundred bore holes down to the rock. This work is expected to be finished during this calendar year, when there should be sufficient data available to estimate and prepare for starting the graving dock and other permanent construction. The opinion has been expressed, however, by those concerned that this new construction will not be under way much before another one or two years at least. The above, with some desultory filling and pile driving here and there, practically completes the scene of actual or visible activity in naval base construction. It is not impressive, but could hardly be conspicuously so considering that much of it is of a test and preparatory character which must be done before the more serious work is undertaken.

The view of the naval base is not impressive from either land, air, or water sides. The only visible construction works are the little group of residence barracks, the pier, and the small machine shops. Even the great dredger and its hopper barges do not loom up impressively against such a background. However, while this bird's-eye view doesn't show much, a close inspection indicates that with the preliminary work done the project should and possibly will soon show up better.

The European staff at the base, mostly civilian officers from the British naval establishment at Portsmouth, numbers about 30 engineers and related technicians. Outside of the doctor and his staff engaged in systematic antimalarial investigations at the base there are no naval officers here connected with the work excepting the captain and his assistants, who are at the naval office in Singapore city. Both naval and civilian staff should, of course, increase rapidly as time goes on, but the numbers now are considerably less than one would expect. There are several Chinese employed as machinists and in related skilled labor. About a thousand Indian (Tamil) laborers are employed in clearing, drainage, and other rough labor,

and the opinion was expressed that this number would probably soon be doubled. At the beginning there was some friction between private interests and the naval authorities over the weaning away of Indian labor from the rubber plantations, but there has since developed a greater supply of labor. The naval officials say that in the event of any considerable increase in their needs they will undertake the recruitment of their own labor in south India.

Fairly pretentious arrangements for oil-fuel storage for naval purposes have already been made at Singapore. Regardless of the projected naval base, there are always British war vessels calling at Singapore for oil fuel. This establishment and regular requirement, together with the availability for spending of money appropriated under separate headings, has doubtless enabled the admiralty to proceed so rapidly as practically to have already completed adequate oil-fuel storage. The original installation at Singapore consisted of two tanks at the admiralty wharf in Keppel Harbor.

Not far from the oil wharf at Keppel Harbor, and adjoining Alexandra barracks, is a place called Normanton. Here there have been erected a total of 40 large tanks, each understood to be of 12,000 tons capacity. This installation, which was completed more than a year ago, is connected with pipe line to the Keppel Harbor oil wharf. Normanton is practically a part of Singapore city on the south side of Singapore Island and is reckoned to be about 15 miles from the base site at Seletar.

Crossing the island from Normanton in a northeasterly direction, perhaps 10 miles by direct road, is a native village called Mandai, which is still about 5 miles by road from the base reservation at Seletar. Here there have been completed another group of 38 oil tanks, stated also to be of 12,000 tons capacity each. This installation is connected by pipe line with Normanton and Keppel Harbor, but is believed not yet connected with the base.

Between Mandai and Woodlands (the beginning of the Johore causeway) there are understood to be two underground tanks of 8,000 tons capacity each. Two similar underground tanks are said to be proposed for the base site, in addition to 36 proposed tanks above ground there of the same capacity as those at Normanton and Mandai. Two additional tanks are also understood to be proposed for Mandai, bringing the total there to 40. The Keppel, Normanton, and Mandai groups of tanks are all now used for oil storage and may at this time contain a total of close to a million tons of fuel oil. Tankers, mainly those under Admiralty operation, are continuously coming into Singapore carrying fuel oil from Persia or Borneo, which is unloaded. Commercial oil people express the opinion that there are already stored in Singapore, roundly, 5,000,000 barrels,

according to American measurements, of fuel oil owned by the British Admiralty.

It is understood that the Australian Government has either actually begun, or will soon begin, the construction of a number of tanks at Port Darwin (Australia) for its own purposes as well as to provide empire naval oil-fueling facilities supplementary to those already existing at Singapore in connection with the base.

NOTE.—Port Darwin is the seaport of Australia nearest to Singapore, about 2,300 miles separating the two.—Ed.

There also exists the suggestion that the Australian Government will expand these fueling facilities to include others for docking and repairing vessels of the empire combined fleets, by employing the funds which it has been expected would be contributed to the construction of the Singapore base.

A British War Office commission has now arrived in Singapore for the announced purpose of making full inquiry into the question of the defenses of Singapore Island in connection with the naval base. The commission is headed by Lieut. Gen. Sir Webb Gillman, inspector of artillery to the War Office. General Gillman states that he expects to spend two or three months in Singapore studying the question of a land-defense scheme for the naval base.

The present land defenses at Singapore, staffed by the Royal Artillery forces of the British Army, are not extensive. They are practically all on the two islands of Blakan Mati and Pulau Brani, which are just off Keppel Harbor.

Probably the most important of the few units of the naval base which have actually reached the stage of active construction is the floating dry dock, the contract for which was recently placed in England with the firm of Swan, Hunter & Wigham Richardson (Ltd.), of Wallsend-on-Tyne. According to data available, this great floating dock will cost approximately £1,250,000 and will be capable of lifting a ship of 50,000 tons. It is expected to be completed ready for towing out to Singapore late in 1929. Reference has already been made to the dredging operations going on at Seletar, where the berth for the floating dock, measuring approximately 1,200 by 900 feet, with 70 feet of depth, is nearing completion.

NOTE.—The first section of this dock has recently been launched.—Ed.

The builders of the floating dock are quoted as saying that it will be the largest naval structure of its kind in the world. There has been a great deal of discussion as to the problem presented in towing it the approximately 16,000 miles from the Tyne to Seletar. The estimated cost of towing the dock from England to Singapore is £50,000.

Some time ago there was considerable anticipation that the floating dock would be built in Hong Kong. It was argued that the towing

problem would thereby be greatly minimized, and that, although much of the material would have to be imported, the labor costs would be greatly less than in England. However, the skilled labor available at Hong Kong is practically all Chinese of more or less turbulent character, and the probability of labor troubles there under present disturbed conditions was doubtless one important influence in the Admiralty decision not to place the contract in Hong Kong. Also the fillip given to the jaded industrial situation in England by the placing of so large a contract there was an important, if not the most important, influence outweighing other valuable and practical considerations in favor of building the dock at Hong Kong. The Singapore Harbor Board also had some hopes that it would be given the contract.

Discussion has indicated the possible early beginning of the preparation of a flying field of 600 acres on the naval base reservation. The rubber plantation covering the proposed site has not yet been disturbed. It would appear that the early construction is contemplated of one or more airdromes for hydroplanes at the base, as recently published estimates in London include the sum of £83,000 for this purpose. Further color is given to the probably definite status of the project by a press notice dated March 13, 1927, in London, to the effect that "six flying boats, each fitted with 450-horsepower engines, will participate in the far eastern flight." The notice further states that "they will follow the sea route and ultimately remain at Singapore as the nucleus of an air fleet working in conjunction with the Australian air force." This cruise will, it is understood, take place in 1928. The mention of Singapore in the estimates for extension of air base facilities is generally accepted as a definite indication of actual work in the near future. Such work must, of course, be undertaken soon if the six flying boats, above mentioned as destined to remain in Singapore, are to be properly taken care of.

Regardless of the progress made on the base itself it would seem there should promptly be some development of air defense facilities, if for no other reason than that such are immediately called for by the already completed and considerable fuel-oil-tank installations.

There has in the past been expansive discussion of activities in connection with the extension of civil or commercial air service to Singapore. Private enterprise has already carried out surveys of the west coast of Malaya to locate air base facilities, and it is understood that similar surveys have been made on the east coast, where the naval base is located, by official naval and air force agencies of the British Government.

In a report of the discussion of the British naval estimates for the fiscal year which began April 1, 1926, the cost of the Singapore naval

base was estimated at £9,414,500, of which £178,000 had already been spent and of which £225,000 were to be spent in 1926–27. This estimate did not, of course, include the cost of machinery (£1,000,000); navigation aids and seaward defenses (£562,500); minor sums for furniture, etc.; the cost of the oil-fuel tanks (£950,000); and the cost of the floating dock now under construction. However, without going into unnecessarily detailed discussion of the various items and estimates, it may safely be said that the base alone will cost a total of about £10,000,000, of which no great amount has so far been actually expended.

An appreciable part of this total cost is expected to be met by contributions from the various British colonies and dominions concerned. So far the most important contributions have been from Malaya. The Straits Settlements contributed the acreage for the base, which cost about £146,000. The Federated Malay States, second of the three administrative units making up British Malaya as comprised in the peninsula, have made a magnificent contribution of £2,000,000. This sum will not all go to the Admiralty for actual base work. Some of it will go to the Air Ministry and to the Army for use in connection with supplementary work for the fortification and protection of the base.

The colony of Hong Kong is recorded as having donated a total of £250,000 to the naval-base project. Owing to the adverse influence upon its business prosperity caused by disturbed conditions in China there is small likelihood that this colony will be in a position to make further substantial contributions. There is perhaps further discouragement in the generally understood plan that Singapore, with its naval base, will supersede Hong Kong as the British outpost in naval and other affairs in the Far East.

The various British dominions, Australia and New Zealand in particular, have been expected to make handsome contributions to the base, and there is much disappointment that they have not yet definitely been committed in that respect. The imperial conference held in London last fall was counted upon to develop specific offers of assistance, but the general impression in Singapore is that the conference as a whole was inclined to minimize the importance of the naval base in empire defense matters.

The conference did apparently develop a feeling that the defense of the dominions must in the future be to a much greater extent their own concern. They have claimed the status of self-governing countries, and that alone might be expected to carry with it certain responsibilities, of which the chief would be the one of defense. It would appear that such responsibility must soon be accepted, as Britain, with a heavy war debt, harassed by strikes and industrial unrest, and with its unusually heavy taxes, can not continue indefi-

nitely to carry the major part of the burden of meeting the cost of defense for the empire as a whole. The impressive lead given by Malaya, with its two millions for the base, has been expected to hasten decision by India and the dominions as to their own contributions.

In Singapore great pride exists in the base, and there prevails, naturally, much impatience that the construction work proceed more rapidly. Apprehension is taking form that unless more definite progress is made within the near future danger of interruption to, or total suspension of, the work lies in the possible return of a Labor government in England in the next general elections. If sufficiently substantial progress is made under the present government, however, the belief exists that even a Labor government would not dare definitely to suspend the project. The suspension two years ago, when Labor was in power—which it may be remarked did no particular harm owing to the comparative unimportance of the construction work then actually under way—is considered responsible for Australia having become involved in a position where a contribution will now be much more difficult. Both New Zealand and Australia had originally asserted an intention of helping out with the base. But when the Labor government announced its abandonment of the project the Australians proceeded to lay out a defense plan of their own, which they are probably now pledged to complete at the expense of contributions originally intended for Singapore.

There seems no doubt but that from the viewpoint of Malaya the immediate future speeding up of naval base construction is in the hands of India and the dominions. Construction developments have undoubtedly dragged awaiting definite commitments from these particular empire units. The belief has further grown that Australia will not be in a position to contribute any cash to Singapore, although New Zealand is understood now to plan the giving of a million sterling if its own parliamentary approval can be obtained in the face of Labor opposition. What other financial support may be forthcoming still appears more than uncertain.

NOTE.—Since the above was written, the New Zealand Government has announced a donation of £1,000,000 toward the base. Whereas the per capita expenditures of the United Kingdom on naval defense is £1 4s. 10d., that of Australia and New Zealand is only 8s., and Canada 8d.—ED.

Weighing all sane expressions of opinion available, together with considerations of geographical nature, it would not seem that the British naval base at Singapore is necessarily aimed at Japan. The nearest Japanese territory to the base is Formosa, 1,500 miles away. There is no nearer possible threat of established Japanese force, although the jingoes have interpreted the setting up of Japanese

plantations and mining interests in Malaya and Borneo as being of sinister intent. There have been planting and mining leases of land to Japanese interests throughout this part of the world and one of the latest is situated in Johore across the base.

It is important to British interests, of course, that there be some method of influencing Japanese potentialities in the control of the Pacific. The Anglo-Japanese treaty might be considered as having provided such influence for the British, or as might be better said it provided a means whereby Britain could have some advance assurance as to Japanese intentions in possible far eastern conflicts regardless of the nations immediately concerned. The abrogation of that treaty at the Washington conference leaves something to be desired in the control or assurance respects indicated, and the base at Singapore might possibly be considered as at least a moral encouragement to Japan to continue the old arrangement of working with rather than against Britain. From a consistent reading of international press notices one would gain the impression that Britain and the European powers are convinced that Japan can not regain her position as a first class power before many more years because of the 1923 earthquake losses and the serious economic problems which have cropped up persistently in recent years. Full recovery of Japan is argued possible only through thorough penetration in Manchuria. In view of possible Russian opposition, that penetration in the degree considered necessary would not appear as an accomplishment of the near future. Improbability of trouble from Japan is also encouraged by the weakening—some say abandonment—of that power's aggressive attitude toward the Australian, Canadian, and American immigration restrictions.

NOTE.—Recent press notices from Japan, especially those received just prior to the three-power conference, are not so certain that Singapore is not aimed at Japan. In fact these dispatches would indicate that Singapore is at present the bête noire of the Japanese naval world.—ED.

It would seem more practical to advance the opinion that the Singapore naval base is aimed at no one power or international complication in particular. Britain's interests as a whole in the East are too great and extended to permit that country to stand aside.

Recent developments have in a sense challenged and, perhaps, compromised, these interests. They must have adequate defense possibilities, although, as many think likely, such may never be called into physical use. Japan may or may not be a menace. Many informed people will be found to argue on either side. There is also Russia's growing aggressiveness (and chicanery, as some say) in China, which, while it may never permanently affect British interests, will likely

flourish less under the shadow of a Singapore naval base than it would without. The Chinese themselves, in what may for purposes of argument be accepted as legitimate national activities, might be encouraged to proceed further in damaging British interests if there were no adequate defense base in this area. In the alleged Chinese illegitimate activities, national or otherwise, the base will be useful in the protection of British interests. In this latter connection the growth of Chinese piracy, of which even ships flying the British flag have been the victims lately, would, perhaps, never justify the employment of considerable naval forces, but the base can conceivably contribute its bit to that situation. In any event, British naval forces in the East appear to be in the way of permanently increasing, and they might as well have a first-class base as any.

Trincomalee, in Ceylon, once a British naval base, was mentioned before the decision was taken to build at Singapore. As against Singapore in favor of Trincomalee it has been argued that navigation in the Malacca Straits to the west of Singapore is sufficiently difficult to handicap a fleet proceeding to the defense of India and that Trincomalee would be strategically most superior in that respect. The difficulties of navigation through the Java Sea to the south from Singapore have been argued in favor of the much clearer and open sweep directly from Trincomalee to Australia. There have doubtless been other arguments which were advanced by such proponents as there were of a rehabilitated Trincomalee base. It seems just as well that arguments in favor either of Trincomalee or Australia were not strongly pushed, because neither place compares with the present site from the point of view of security, and comment already submitted is believed to have demonstrated that no place in this part of the world could serve the many purposes, actual or potential, as well as they will be served by a base located at Singapore.

B. AERONAUTICAL

1. Aeronautical equipment on cruisers.

During a Commons debate recently the First Lord of the Admiralty stated that the maximum number of aircraft and catapults carried by any one cruiser built is:

	Aircraft	Catapults
Great Britain	3	1
United States of America	3	2
Japan	3	1
France	1	1
Italy		

2. *British Schneider trophy entries.*

[*Source: English press*]

The first official inspection of the Royal Air Force high-speed machines, which, it is hoped, will win back for Great Britain, at Venice, on September 25, the Schneider international seaplane trophy, took place recently, when two of the three types were seen in all their grace of line and perfection of workmanship. These were the Supermarine Napier *S–5* monoplane and the Gloster-Napier *4* biplane, built by the Supermarine Aviation Works, Southampton and the Gloster Aircraft Co., Cheltenham, respectively, the engine unit in each case being a racing version of the well-known Napier-Lion aero engine.

A party of 27 Royal Air Force mechanics, with special technical representatives of the firms concerned, are to attend to these highly tuned racing aircraft, and His Majesty's aircraft carrier *Eagle* will be stationed at Venice with four British destroyers for the period of the race.

The monoplane naturally catches the eye first, for undeniably a single-wing machine looks more graceful than a biplane, though the Gloster-Napier is very far removed from the conventional biplane and is a gem of design in the deletion of all possible head resistance. Even so, the monoplane has the advantage that it lends itself to the elimination of struts and cross-bracings, and halves the points of junction of body and wings, opportunities of which full advantage has been taken by R. J. Mitchell in designing the Supermarine-Napier *S–5*.

It is a low-winged monoplane, developed from the *S–4*, which holds the British seaplane and land plane "record" of 226.7 miles per hour; but that development has gone very far, so far in fact that one can not help being enthusiastic about Great Britain's chances. The fuselage is smaller, one imagines, in cross-sectional area than any fuselage yet designed, and has in effect been more or less dictated by the size of the pilots. The area of the cross section at its maximum is only just over half that of the S–*4*, and as the Italians, who are again pinning their faith to the monoplane, have a larger engine in the Fiat, it is difficult to believe that they can produce a fuselage with a lower head resistance than that of the Supermarine-Napier *S–5*. The three blocks of the Napier Lion engine melt into the general lines of the fuselage, the cylinder block covers being in effect, the cowling itself at that point, the pilot's cockpit, with a tunnel-type wind screen, following in a perfect stream line with the fairing of the center block of four cylinders. Tankage space in the body has been saved by putting the petrol supply into the starboard

float, this side of the machine being chosen in order to balance in part the torque of the air screw, acting in an opposite sense.

Even more puzzling at first sight is the apparent absence of even wing radiators, indicated in the companion biplane by metal corrugations on the surface of the wing. Actually the perfectly smooth wing surface of the *S–5* is largely radiator, with a flat outer surface, thus cooling the engine water without in any way adding to the skin friction of the wing itself. In high-speed racing engines of this type as big a problem of cooling the water is that of keeping the oil at a reasonable temperature; in the *S–5* a flat surface oil cooler runs along both sides of the fuselage.

The whole of the fuselage is of metal, the thin skin being built up of plates riveted like those of a ship, and there is a perfect surface from nose to tail, along which the air can flow with the minimum of disturbance. The usual difficulty with a monoplane of insuring absolute rigidity of the wings has been effectively overcome by the use of bracing wires running from the wooden wings to the top of the fuselage and to the floats, which are cross braced to tie the whole structure into a unit of exceptional rigidity. The floats, made of duralumin, convey, perhaps, the most impressive idea of the smallness of the monoplane, for, viewed from the side, they appear almost as large as the fuselage itself. Actually each float is about two-thirds the size of the body, buoyancy requirements dictating such an apparently disproportionate ratio.

THE GLOSTER-NAPIER

The Gloster-Napier *IV* is the latest of the long series of racing aircraft designed by H. P. Folland. Of the earlier types Gloster *III* reached 200 miles per hour in the 1925 Schneider trophy race, and last year was improved to give in home trials 232 miles per hour. Here again notable advances have been made in the Gloster *IV*, which has a beautifully stream-lined body into which the upper and lower wings are faired with extreme smoothness of line, while external bracing has been reduced to a minimum. Removable petrol tanks are carried in the fuselage, and the oil tank and cooler have been incorporated in the perfect stream-lining of the nose of the machine. The cooling water is carried in a long header tank which forms the continuation of the fairing of the center cylinder block of the engine and leads on to the tunnel wind screen of the pilot's cockpit. The wing radiators are of the corrugated type, and form an integral part of the wing, while in order to provide against all contingencies, additional skin radiators of the same type form part of the top surface of the floats. The constructional work of the body is of the

mixed wood and metal type, and the thin section wings are constructed on the multispar principle. Every external control has been eliminated, and a valuable addition is that both elevator and rudder controls are fitted with a variable-control device for increasing and decreasing the movement of the control surfaces in relation to that of the control column. The outward sloping interplane struts are built up of dural forgings to reduce further the frontal area, and the metal airscrew, a Fairey Reed in the case of the monoplane, in the biplane is of Gloster design with detachable blades. This enables the blades to be machined to their correct pitch and contour from a solid duralumin forging, and no twisting of the blades is required.

Apart from the interest attaching to the seaplanes, there is the Napier Lion racing engine, and here it is desirable not to mention details, for, given the maximum machine and airscrew efficiency, everything depends on the performance of the engine. All that can be safely said is that frontal area has been reduced by ingenious rearrangement of certain details, and that, as the racing Napier Lion in 1925 gave 700 horsepower, and development has been continuous ever since, the horsepower will show a substantial increase. One new feature of value is the inclusion of a special reduction gear, the effect of which is to enable a slower-running airscrew to be used to give a higher efficiency. This is the first time that a high-powered geared racing engine has been produced, and this alone represents a most difficult engineering problem successfully surmounted.

SIX MACHINES FOR VENICE

Six machines in all are being sent out to Venice, three being Supermarine-Napier *S–5* monoplanes and two being Gloster-Napier *IV* biplanes. The sixth machine is the Short-Bristol Crusader, a monoplane, embodying a radial air-cooled racing engine, which is now at Felixstowe. No decision as to which of the six shall form the final team of three has been made, or will be made, until experience has been gained of actual flying under Italian climatic conditions, and all the factors making for success have been properly gauged.

NOTE.—It will be remembered that it was the British who refused an extension of the date of September 25 and so prevented the United States from entering the race this year.—ED.

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3. *New British machines.*

A number of British aircraft have recently been removed from the secret list of the Air Ministry and transferred to the part publication list. Below are given some details of these machines.

GLOSTER GAMECOCK II

The Gloster *Gamecock II*, built by the Gloster Aircraft Co., Cheltenham, is a modification of the well-known *Gamecock I* single-seater fighter, embodying various improvements resulting from extended experience with the earlier type. *Gamecock II* is not yet released by the Air Ministry for detailed descriptions of performance with the latest type of Jupiter radial engine, but a somewhat similar type of machine with a Gnome Rhone Jupiter 9ab engine of 420 horsepower has been supplied to the Finland Air Service. Details are available of this machine, and it may be surmised that in general the main alterations will be found in both machines. The wings of *Gamecock II* are outwardy almost identical with those of *Gamecock I*, but a center section has been introduced and the center pylon struts abolished, the center struts being carried from the fuselage to the junction of the center section and the main wings. The center section is also thinner, and the result has been greatly to improve the view. The overhang of the wings has been reduced by carrying the outer struts from the bottom of the plane outwards to the top wing, while the ailerons have been altered and are now of the narrow chord variety, equally spaced on each side of the outer strut. The former form of aileron false spar has also been abolished, being replaced by a spar running the whole length of the wing.

Another refinement is the more complete housing of the wing tanks within the contour of the wing, the surfaces being almost flush with the wing, thus reducing wing drag effects. Another detail improvement is a modified form of wind screen, which results in less interference being set up with the wind stream over the tail unit. The structure generally is stiffer, while the fore and aft control in diving has been improved. The directional control under all conditions has been improved as a result of careful redesign of small points, and in addition the lateral control has proved lighter on the new model. The only performance figures available relate to the *Gamecock* with the French-built Jupiter of 420 horsepower, and these must not be regarded as anything more than an indication of what the most advanced type will do. They show a speed at ground level of 150 miles an hour, with 140 miles at 10,000 feet, and 135 miles at 15,000 feet. The stalling speed at sea level is 50 miles, showing that there is a good speed range. The *Gamecock II* climbs to 10,000 feet in seven minutes and is at 15,000 feet in 12.23 minutes. The absolute ceiling of the machine is 22,000 feet, and the service ceiling 21,150 feet. These figures were hastily arrived at as the machine was required in time for the Finnish air display, and there is little doubt that, after further tuning up of the engine, a better performance will be secured.

ARMSTRONG-WHITWORTH "ATLAS"

The *Atlas* two-seater is the production of Sir W. G. Armstrong Whitworth Aircraft (Ltd.), of Coventry, and is now actually in production as the standard army cooperation airplane of the Royal Air Force. It thus replaces the famous *Bristol Fighter*, which did yeoman service both in and after the war. The *Atlas* shown at the Royal Air Force display, however, has been modified to make it a general-purpose machine, and thus it has to accommodate a varied collection of spare equipment which it would not carry on army cooperation work. It has been altered internally to carry more petrol and a heavier bomb load, while for desert work arrangements are incorporated for carrying a spare wheel, a considerable quantity of drinking water and rations, sleeping equipment, tools, and first-aid outfit.

The machine is fitted with an Armstrong-Siddeley Jaguar engine, and this includes a supercharger giving constant speed practically up to all heights to 10,000 feet. The general-purpose machine is no bigger in over-all dimensions than the army cooperation type, so that it can be housed in the same space, and, in spite of the greater amount of fuel and equipment carried, the strength factors are higher throughout, while the machine is at least 25 miles an hour faster. Naturally, the well-tried Armstrong-Whitworth all-steel method of construction is used; this does not depend upon welding, so that high-grade steels can be used throughout and any member in the structure replaced easily in the field. Dual control is provided, and the flying controls are particularly light, while the machine is quite stable—an important factor for photographic and reconnaissance duties.

"AVRO AVA"

It is all-metal, and its wings are stated to be the largest all-metal wings made in this country. A noteworthy feature is that despite its enormous dimensions and weight, 10 tons, the *Ava* is very easy to fly and is highly maneuverable for a machine of this size. The wings are made to fold, so that housing is simplified. The pilot is so placed that there is in effect a double deck. He is high up in front of the wings on the first story, as it were, and there is more than sufficient depth in the fuselage to give a clear passageway right along the main section of the body, which is of such width that if required a series of compartments for wireless, chart rooms, and other purposes can be provided opening off the passageway. There is a forward cockpit for a gunner and another cockpit aft with a gun tunnel underneath. So far the *Ava* has not been developed as a military machine, though there is little doubt that it has every attribute needed to make it a formidable instrument of war.

Normally petrol is carried for a flight of 5½ hours' duration, but it must be remembered that this is a conservative estimate on normal load factors, which could quite safely be exceeded, as in the case of other machines.

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4. Metal construction in flying boats.

[*Source: British press*]

The importance of the use of all-metal hulls as well as metal superstructure in flying boats was emphasized recently in dealing with the British policy of gradually changing over from timber to all-metal in aircraft development, and particulars were then given of one new all-metal boat.

It is now possible to explain in some detail an equally interesting development by the Supermarine Aviation Works, Southampton, whose flying boat, the *Southampton*, is perhaps unrivaled in its class for performance, seaworthiness, and flying qualities. As a result of the gradual development of over two years, duralumin hulls are now being employed in the *Southampton*, and owing to elimination of the water soakage inevitable with wooden hulls and, in addition, a considerable saving in structure weight, the *Southampton* in its metal form not only retains but adds to the efficiency of the original design. By the use of metal a saving of something like 520 pounds is effected in the hull weight; and if the saving due to the absence of water soakage is put at 500 pounds more, the result is that approximately 1,000 pounds has been added to the useful load of the boat. This is equivalent to something like 128 gallons of petrol, and at cruising speed the normal range of the *Southampton* with its ordinary equipment is thus increased from 700 to 1,000 miles, while the maximum range for long-distance work with a permitted and safe overload approaches 1,800 miles, more than sufficient to fly from England to Malta nonstop.

The general clean hull lines associated with this firm's products are still retained without modification in their metal type of construction. As might be expected, the shipbuilding tradition can be traced in the structure shape used. This is built up on a deep keel of duralumin plate, lightened by circular flanged holes and strengthened by riveted-on angles. Upon this is built up a system of frames at 2-foot centers, each frame being made of flanged plates shaped to incorporate the circular body form and the sweep of the chines in the one unit. These, again, are stiffened by circular flanged holes, this principle being used wherever desirable. The large frames are built up of four sections for ease of manufacture, these being riveted together by butt straps; the frames of medium size are built up of three sections, and the smallest are made in one section. There are

intercostal members between the frames and stringers to give longitudinal rigidity to the structure and stiffen the outer plates locally. The hull plating is fitted in rectangular sheets with staggered joints to insure uniformity of stress, and all joints are arranged to come in between the stringers and frames. The sheeting, varying in thickness according to the local stress, rises to 14 gauge along the planing bottom. Much of the strength is obtained by a double curvature of the plates, and great care is taken to secure perfectly clean lines so that seaworthiness may not be impaired.

Double and specially stiffened frames are incorporated at the points of the wing attachments, and with the change over to metal construction the old double skin of the wooden hull has been replaced by a single metal skin, which naturally follows the chine lines and thus provides more interior space in the boat itself. This system has the further advantage that it exposes the whole of the interior to inspection and enables internally operated drain plugs to be incorporated so that the boat can be drained while in the air.

An interesting feature of the supermarine all-metal construction is the saving of weight effected in comparison with the older type of hull. This amounts to the somewhat surprising figure of 28 per cent. The practical application of this in the case of the *Southampton* has already been pointed out, but it is worth adding that R. J. Mitchell, the firm's chief designer, is satisfied that a metal hull for a flying boat will not take more than 9 per cent of the whole structure weight, a figure which compares very favorably with the percentage weight of body and chassis in a land machine, and opens up a new avenue of commercial development. Stainless steel fittings are used throughout to eliminate the interaction which is known to occur between duralumin and mild steel.

The *Iris II*, built by the Blackburn Aeroplane Co., of Leeds and Brough, is a boat of some 12 tons in weight fitted with three Rolls-Royce Condor engines, and has a particularly long range combined with noteworthy seaworthy qualities. Its take-off from Felixstowe at the start of the Scandinavian cruise impressed every one by the cleanness of the boat when running on the water and the ease with which it left the water and manœuvred in the air. The hull is particularly roomy and approaches ship practice in the accommodation, bunks being provided for the crew to sleep on board. No petrol is carried in the hull, making it possible to use a pressure type of oil stove on a cooking tray for preparing hot meals. There is the usual forward cockpit in the nose for mooring gear and for a gun, and immediately behind is a double cockpit for the two pilots. At the rear is a large navigator's compartment complete with chart table and racks, while a sliding cover above can be moved back to enable the navigator to stand up and take observations.

Then comes a wireless operator's compartment, again of ample size, and aft of the main planes are hatchways and two large water-tight doors in the sides of the hull which can be used for ingress and egress, and are also fitted to take guns firing under the tail. The boat is the latest and largest British military type developed, and represents a definite advance in flying boats designed to operate independently of shore bases. It has one novel feature, a gunner's cockpit in the extreme tail and aft of the rudders and elevators.

The Short *Singapore* is one of the latest all-metal flying boats and is actually the first to be delivered to the British Air Ministry which is entirely metal from hull to superstructure. It is of very clean design, and in the air the superstructure is like that of a scout, with its single pair of outward sloping wing struts and overhung top wings. Yet it is a twin-engined machine with two Rolls-Royce Condor engines of 650 horsepower, mounted in two engine nacelles close set to the center line of the boat and with their engine support struts forming a rigid and clean central unit. The design generally indicates that great care has been taken to reduce head resistance. The rudder is of triple form and the central rudder is noticeable for the Flettner type balance. The *Singapore* has remarkable range and load-carrying capacity, and it is intended to operate as a reconnaissance unit at sea. It represents the latest development of the duralumin type of construction of Messrs. Short Bros., of Rochester.

C. MISCELLANEOUS

1. Russo-British air rivalry in the East.

Although Great Britain established herself in a strong position in Persia, Mesopotamia, and the Near East after the war, German and Russian air services have secured many advantages, and have ousted England from her favored position. The new Shah, Rizi Khan Pehlevi, appealed to England for support at the time of his coup d'état and receive it, but since then he appears to have listened to Moscow and Berlin with the result that British airplanes are not permitted to fly over Persian territory.

The present British Cairo-Basra Air Service is operated by Imperial Airways (Ltd.) with five machines and runs a weekly service. It was originally intended to extend the service this year from Basra to Karachi and to inaugurate a weekly service each way as soon as ground organization had been completed. Difficulties with the Persian Government prevented this plan coming to fruition. The situation, therefore, to-day is that both German and Russian airplanes are permitted rights in Persian territory and some alarm is felt concerning the safety of Anglo-Persian oil wells which could be

bombed and set on fire from the air in the event of hostilities. Up to the end of May the total mileage flown on the regular service was 51,000 miles, all flights being carried out on scheduled time, and the amount of mails carried has shown a steady increase.

The Basra-Bagdad section is particularly popular because of the saving of time effected and the increased comfort compared with the railway journey. The distance is 300 miles, which is flown in three hours as against 26 hours by rail. From Cairo to Bagdad the distance is 818 miles and the record flight stands at 6 hours and 20 minutes.

The British are disturbed by the fact that the Junker Co., by arrangement with Soviet Russia, have an air line from Moscow to Teheran and have secured a five-year monopoly in Persia. The Russian air line operates also as far as Enzelli from Moscow. The Persian Government, presumably instigated by the Junker Co. or by the Russians, now demands the right for the Junker machines to fly from Teheran to Bagdad as a quid pro quo for the British right to fly along the Persian Gulf. As this would entail putting Bagdad in air touch with Moscow, thereby facilitating Bolshevist propaganda in Iraq and other British spheres of influence and mandated territories, the British Government is naturally averse to the proposal.

The Junker air line from Teheran has already reached Quretu, which is less than 100 miles from Bagdad. Another branch will go from Teheran to Bushire on the Persian Gulf. The Junker Co. is now booking passages from Teheran to London for a fare of £50, the trip to take five days. The route hitherto via Moscow by rail and sea costs £60 and takes 10 days, while a third route via the Persian Gulf and Bombay costs £80 and occupies over 25 days.

NOTE.—This question of flying rights over Persian territory will soon become very important as next year or at least by year after next the British hope to instigate their England to India airship route—the ships for this service are now being built.—ED.

ITALY

A. NAVAL

1. Recent strategical-exercises of Italian fleet.

In the last 10 days of June, the fleet, which in this moment is concentrated at Gaeta (gulf just above Naples) conducted strategical-tactical exercises as follows:

PLAN

"Red" (adversary) moving from a base near the passage between Sicily and Sardinia to make a raid in the southern Tyrrhenian Sea against enemy vessels, and to carry out offensive aero-naval action against the mainland.

"Blue" (own forces) which has light forces at Cagliari and Trapani and main force at Messina, must oppose action of "Red" and cut off its return to base or escape to the north between Elba and Corsica.

Among the objects to be arrived at in these exercises were included the development of the habit of coordinating aircraft and vessels and to this end the air force was given a prominent part; also, exercises in the form of scouting and communication, which are considered among the most important for the defense of the Tyrrhenian Basin.

SUPPOSITION

It was presupposed by the two sides that Italy is at war against a western nation, whose bases are supposed to be at Sant Antioco (in Sardinia), and at Spezia; that hostilities have been under way for some time; that "Blue" has its naval forces divided between Cagliari, Trapani, and Messina, and that "Red" has its forces concentrated at Sant Antioco.

COMPOSITION OF THE FORCES

In the composition of the forces the scouts *Ancona*, *Bari*, and *Venezia*, represented cruisers of 10,000 tons with 8-inch guns, and the scouts *Brindisi*, *Premuda*, *Riboty*, *Leone*, and *Tigre* represented modern scout cruisers armed with 6-inch guns.

Speeds were assigned analogous to the types, but giving to the national forces a slight advantage over similar forces of the enemy.

RED FORCES

A group of advance forces consisting of *Ancona* and *Bari* (of 10,000 tons), *Leone* and *Tigre* (light cruisers with 6-inch guns), and a flotilla of destroyers.

Supporting group: *Doria* and *Duilio* (battleships), an auxiliary representing an aircraft carrier, and a flotilla of torpedo boats.

Two squadrons of submarines of large tonnage.

Several squadrons of aircraft; one of reconnaissance, one of bombardment, one of fighting, and a dirigible.

BLUE FORCES

Cavour and *Dante* (battleships), *Quarto* and *Venezia* (cruisers of 10,000 tons), *Brindisi*, *Riboty*, and *Premuda* (light cruisers carrying 6 inch guns), and two flotillas of destroyers.

Two squadrons of coastal submarines.

Several squadrons of aircraft for scouting and light bombardment, two squadrons of fighters, and one or two dirigibles.

GENERAL

A slight change is always made in exercises, the initial positions of each force not being communicated to the other except in very general terms.

It is easy to see the forces were constituted to represent, as much as possible, modern types, which Italy will have in the near future.

The collaboration of aircraft was very ample.

It is necessary clearly to state that the theme of these exercises, in itself, was of little importance. It did not try to demonstrate that an action against the coast would be possible or impossible.

The scope of the plan was to create, in the brief time allotted, the greatest number of problems between the maximum number of forces, including the light and heavy, the surface, subsurface, and aerial.

The exercises were directed by the commander in chief of the navy.

The chief of staff of the navy was on board one of the major ships.

B. MISCELLANEOUS

1. Geographic information affecting the strategy of the country.

[*Source: M. I. D.*]

a. Frontiers: A very great benefit which Italy enjoys is that she is surrounded on all sides, either by the sea or by a mountainous frontier. From west to east there is first: Pass of Mount Genevre which is regarded by the French as being Italy's offensive highway. Pass of Mount Cenis. Here the reverse conditions obtain: Italy regards this as a defensive sector. Similarly for the Petit St. Bernard, the Grand St. Bernard, and the Simplon Passes, the topography on both sides of the frontier compels the Italians to adopt the defensive. Brenner Pass. The Italians can hold solidly the Brenner and defend it victoriously, but it should not be regarded as impossible of attack.

On the east, Italy since the war, has the lateral railroad "Udin Trieste-Fiume," and the three penetrating roads into Austria and Jugoslavia. In this sector she is in a more favorable position for a successful defense than an offense.

b. Coast line: The coast line of the Italian mainland, from the mouth of the Varo on the Liguarian Sea to Fiume, measures 2,675 miles. This great coast line, with numerous adequate harbors, has logically made Italy a great trading center and given her a strategic position in the Mediterranean. On the west coasts, her ports put her into direction communication with the western world, and on the east, or Adriatic coast, her ports enable her to hold the key to the trade of the Near East and the Black Sea. This trade is the breath of her life and must be sustained.

What effect has this geographic and economic status, therefore, upon her national policies? The Italian Government, conscious of the necessity of maintaining its trade and also communications with its colonies, to-day focuses its attention on the development of its navy. Her national policy is aggressive in this respect, aiming to increase her sphere of influence in the Mediterranean, she at once runs counter to France, who fears that a strong Italian Navy, developed as indicated above, is a menace to France's communications with northern Africa.

c. Continental Italy: The surface of the country is two-fifths mountains, two-fifth hills, and one-fifth plain. On the north is the barrier of the Alps, from which the Appenines branch off in an unbroken chain to the Adriatic; and from this chain a wide mountain mass spreads to the southeast over the peninsula. This geographical configuration has forced the main north and south railroads along both coasts east and west. The capture of any port would interrupt the main north-south communication, throwing it on the secondary railroads of the interior, which are not sufficient for excessive troop movements. The roads in the mountains and hills render troop movements and supply difficult. Hence the Appenines are a source of weakness if Italy should be invaded from the north or should she operate herself from the north as a base since her north and south communication would be difficult and precarious. But the basin of the Po in the north (29,000 square miles) contains the greater part of Italy's industries and becomes the strategic objective of an enemy, which Italy must defend. The center of gravity of her forces is therefore oriented toward the north and actually toward the northwest. On the whole, the inland configuration of the country calls for a national military policy that is defensive rather than offensive.

d. Island and colonial possessions: The island possessions of Italy, especially Sardinia and Sicily, are factors in determining a policy of naval supremacy in the Mediterranean. Similarly, her colonial possessions (Libya, Eirtrea, and Somaliland) fortify the necessity for a strong navy; but this geographical position would be a source of weakness to Italy in a war with a great power if she attempted to maintain her sovereignty over them.

c. General conclusion: From the above considerations it can be concluded that Italy's military policy is rather defensive. Her great mountain barrier on the north adds to her defensive power and at the same time serves to isolate her. On the other hand, her naval policy is aggressive, if not offensive, and necessarily so, since she must keep open her sea routes, upon which she depends for her food and raw materials. It would be to her advantage to form a strong naval alliance with a first-class power.

JAPAN

A. NAVAL

1. Construction activities.

The cruiser *Nachi* was launched at the Kure Navy Yard recently.

The keel of destroyer *No. 44* was laid down at the Sasebo Navy Yard recently.

Destroyer *No. 44* is the first destroyer of the replacement program to be laid down.

NOTE.—The "Nachi" is one of the six 10,000-ton cruisers that Japan is building. Destroyer "No. 44" is of 1,700 tons. The replacement program includes 15 of these large destroyers.—ED.

2. Naval vessels under construction.

Name	Date of laying down	Date of launching	Where building
Airplane carrier: Kaga (27,000 tons)	July 19, 1920	Nov. 17, 1921	Yokosuka.
Cruisers:			
Kinukasa (7,100 tons)	Jan. 23, 1924	Oct. 24, 1926	Kawasaki, Kobe.
Aoba (7,100 tons)	Feb. 4, 1924	Sept. 25, 1926	Mitsubishi, Nagasaki.
Myoko (10,000 tons)	Oct. 25, 1924	Apr. 16, 1927	Yokosuka.
Nachi (10,000 tons)	Nov. 26, 1924	June 15, 1927	Kure.
Ashigara (10,000 tons)	Apr. 11, 1925		Kawasaki, Kobe.
Haguro (10,000 tons)	Mar. 14, 1925		Mitsubishi, Nagasaki.
Takao (10,000 tons)	Apr. 28, 1927		Yokosuka.
Atago (10,000 tons)	do		Kure.
Destroyers:			
No. 33 (1,300 tons)	Mar. 23, 1926	Apr. 28, 1927	Uraga.
No. 35 (1,700 tons)	June 19, 1926		Maidzuru.
No. 36 (1,700 tons)	Mar. 19, 1927		Yokohama.
No. 37 (1,700 tons)	Apr. 12, 1927		Maidzuru.
No. 38 (1,700 tons)	Apr. 30, 1927		Uraga.
No. 39 (1,700 tons)	Apr. 25, 1927		Fujinagata, Osaka.
No. 40 (1,700 tons)	Aug. 12, 1926		Sasebo.
No. 41 (1,700 tons)	Oct. 21, 1926		Ishikawajima, Tokyo.
No. 42 (1,700 tons)	Oct. 27, 1926		Fujinagata, Osaka.
No. 43 (1,700 tons)	Oct. 18, 1926		Uraga.
No. 44 (1,700 tons)	Apr. 28, 1927		Sasebo.
Submarines:			
I-4 (2,000 tons)	Apr. 17, 1926		Kawasaki, Kobe.
I-22 (1,150 tons)	Feb. 28, 1925	Nov. 8, 1926	Do.
I-23 (1,150 tons)	June 12, 1925	Mar. 19, 1927	Do.
I-24 (1,150 tons)	Apr. 17, 1926		Do.
I-54 (1,400 tons)	Nov. 15, 1924	Mar. 15, 1926	Sasebo.
I-55 (1,400 tons)	Apr. 1, 1924	Sept. 2, 1925	Kure.
I-56 (1,400 tons)	Nov. 3, 1926		Do.
I-57 (1,400 tons)	July 8, 1927		Do.
I-58 (1,400 tons)	Dec. 3, 1924	Oct. 3, 1925	Yokosuka.
I-59 (1,400 tons)	Mar. 25, 1927		Do.
I-61 (1,400 tons)	Nov. 15, 1926		Mitsubishi, Kobe.
I-62 (1,400 tons)	Apr. 20, 1927		Do.
I-63 (1,400 tons)	Aug. 12, 1926		Sasebo.

NOTE.—Above tonnages are standard, i. e., without fuel or reserve fuel water.—ED.

3. Interruption of construction at Kawasaki Dockyard.

The shipbuilding section of the Kawasaki Dockyard has been taken over in its entirety by the Japanese Navy for the purpose of completing the construction of naval vessels at that plant, the dockyard company having been unable to meet its financial obligations. Three thousand employees of the dockyard company were immediately discharged by the navy.

In accordance with press reports, it is estimated that the whole transaction will involve the navy in an additional expenditure of about ¥8,000,000.

NOTE.—The dockyard was forced into bankruptcy during the recent financial turmoil in Japan. There are building there the cruisers "Ashigara" and "Kinukasa" and submarines "I–4," "I–22," I–23," and "I–24."—ED.

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4. New military-service law.

Following are extracts from the new military service law promulgated March 31, 1927:

SECTION 1.—GENERAL

1. The male subjects of the Japanese Empire shall assume military service in accordance with the terms of this law.

2. Military service is divided as follows:

(1) Standing service (jobi-heieki) (divided into active service and first-reserve service).

(2) Second-reserve service (kobi-heieki).

(3) Supplementary service (hoju-heieki) (divided into first and second supplementary service).

(4) National service (kokumin-heieki) (divided into first and second national service).

3. Particulars of military service for volunteers will be fixed under imperial ordinance.

4. Men who have been committed to penal servitude of over six years or punishment above penal confinement can not assume military service.

SECTION 2.—SERVICE

5. The term of active service is two years for the army and three years for the navy and is assumed by those who have qualified for that service.

6. The term of service for the first reserve is five years and four months for the army and four years for the navy. It is assumed by those who have completed active service.

7. The term of service for the second reserve is 10 years for the army and five years for the navy. Those who have completed the standing service (active and first reserve) assume service in the second reserve.

8. The term of service for the first supplementary service is 12 years and 4 months for the army, 1 year for the navy. Men for first supplementary service are taken each year (as many as may be required) from men who, though qualified for active service, have not been taken into active service on account of being in excess over the number required for active service.

The term of service for the second supplementary service is 12 years and 4 months, and those who qualified as active-service men, but who are not taken either for active service or for first supplementary service, go into this service. In the navy those who complete the term of the first supplementary service go automatically into the second supplementary service. The term for such service is 11 years and 4 months.

9. The first national service is assumed by those who have completed the second reserve and those supplementary-service men who went through training and have gone out of that service.

The second national service is assumed by men between the ages of 17 to 40 who are not in the standing service, second reserve, supplementary services, or the first national service.

10. The term of active service for those who have been graduated from normal school before reaching the age of 25 (those who are qualified to teach in elementary schools excepted) is five months. The service for those who have not completed the teaching course in the normal school is seven months.

Those who serve in active service under conditions mentioned in the last paragraph are called "Short term active service men" while so serving.

When the short term men complete their term, they automatically go into the first-class national service.

14. The actual time of service for the active service men, who come under one of the following conditions during their term, may be shortened:

(1) Good conduct and excellent service and educational records.

(2) Men who are beyond the required number.

18. The services mentioned in clauses 5, 6, 7, 8, first item of 9 and 10, regardless of their periods, is limited to men not over 40 years of age.

19. The term of service may be extended in the following cases:

(1) In time of war or emergency.

(2) When it is necessary in preparing for dispatching forces or necessary for guarding or patrolling.

(3) While at sea or on duty abroad.

(4) When an important maneuver or review is held.

(5) In case of natural calamity or of other unavoidable cases.

The time extended under the above conditions will be counted in the service that follows.

20. Men whose families become unable to support themselves will be exempted for active service. This does not apply in case such condition was brought about falsely.

SECTION 3.—RECRUITING

23. Those who attain the age of 20 between December 1 and November 30 of the following year are required to take the military examination, with the exception of those otherwise mentioned in this law. The age mentioned is called the military age.

24. The head of a family shall report to the mayor or village master the existence of men becoming of military age. In case a man reaches this age between December 1 and December 31, the report should be made during January of the next year, whereas if between January 1 and November 30 the report to be made during January of that year.

32. Those who take the physical examination are divided into the following classes:

(1) Qualified for active service.

(2) Qualified for the national service, but not for active service.

(3) Unfit for military service.

(4) Difficult to judge whether fit or unfit for military service.

The standard for each class shall be fixed by imperial ordinance.

33. Those who are qualified for the active service are recruited, as directed by the terms of imperial ordinance, according to the grading of physical and educational examinations, and in accordance with the allotted required number in each recruiting district—active service men first, then the first supplementary service men. In case of the grading of men being similar, the order will be decided by lot for each class of service.

34. Those fit for the national service but unfit for the active service are not recruited.

38. Those who are eligible for the short-term active service and who are qualified for active service are recruited for the short-term active service regardless of stipulations mentioned in clause 33.

39. When a man who is to take the military examination falls under one of the classes mentioned below, his call may be extended to a future time—

(1) When under trial for a crime punishable by penal confinement.

(2) When under detention for having committed a crime.

(3) When under suspended sentence.

(4) When under temporary release.

(5) While confined in a reformatory.

(6) While under temporary release from a reformatory.

40. When it is conclusively proved that a man who has taken the military examination and is to be taken for active service has a family who will lose its means of support, his enlistment will be postponed for two years. When such a case ceases to exist, he shall be subjected to military examination in that or the following year.

If such a cause still exists at the expiration of the extended period, he shall be required to take the military examination in the year following the expiring year, but he shall not be taken either as an active service man or as a first-class supplementary service man.

The extension period above mentioned is reckoned from December 1 of the year of the examination.

41. For those who are attending the middle schools or schools recognized as equal or higher, the call is extended, upon request, until the age of 27 years is reached according to the length of the course.

Particulars of the above will be fixed by imperial ordnance.

42. For those who are in foreign countries prior to reaching the military age, the call will be extended, upon request (with the exception of those who will be specially designated by imperial ordnance).

Those whose call has been postponed for the reason above mentioned shall take the military examination in the year the cause ceases to exist or the year following.

43. When those whose military calls have been postponed for the reasons given in clause 42 return temporarily to Japanese domain upon death of parents, wife, or children, or upon order from the government, it shall be considered that the cause still exists. This privilege will become null and void when the stay extends beyond 90 days.

44. The contents of the last two clauses shall apply to personnel of ships plying between foreign ports.

45. When service brings domestic difficulties by reason of two or more of the same family serving as active service men at the same time, the enlistment of one or more may be postponed while the other is serving.

48. When a shortage exists in the ranks of the active service men, the same may be filled by first supplementary service men who are in the first year of that service.

SECTION 4.—MUSTER

54. Men on furlough or in the first or second reserve, the supplementary service or the national service shall be called out as may be required in time of war or emergency.

56. The first and second reserves may be mustered for the purpose of maneuvers not more than five times during the period of both reserves.

The above call will be made once a year. The number of days will be not more than 35 days in the army and not more than 70 days for the navy.

57. The first supplementary service men may be mustered for the purpose of education not more than once every 120 days.

60. Men on furlough, first reserve, second reserve, and supplementary service men may be called once a year for roll call and muster.

62. When those who are to respond to muster can not do so by reason of sickness or other unavoidable circumstances, the muster may be extended for 10 days.

63. When it is conclusively proved that by a man responding to muster his family can not make their living the muster may be omitted in his case.

SECTION 5.—PUNISHMENT

74. Those who run away, hide, or inflict bodily injuries or cause sickness or commit fraud in order to evade military service shall be punished by penal servitude of not more than three years.

75. Any man who is called to active service and fails to report without proper cause and so remains for a period of 10 days shall be punished by penal confinement of not more than six months and in time of war by penal confinement of not more than one year for failure to report within five days.

76. Those who without proper cause fail to take military examination shall be punished by a fine of not more than 100 yen.

77. The head of a family who fails to report to the mayor or village master the existence in his family of a man who becomes of military age at the proper time shall be punished by a fine not exceeding 50 yen.

B. AERONAUTICAL

1. Aeronautical notes.

[*Source: M. I. D.*]

a. According to the vernacular press, the naval authorities at the Yokosuka Naval Station have announced a plan for the establishment of a large naval air base at Hachijo-jima in the Bonin Islands. A preliminary survey of the locality has already been made by a party of naval officers from Yokosuka, Oppama, and the Naval Aviation Board. The press states that the naval plans call for the construction of this base in the course of this summer. It is alleged that when this base is established the distance between Yokosuka and Hachijo-jima will be covered in less than two hours by plane, whereas at present a journey between these two points by steamer consumes the better part of two days.

b. A large experimental bomber is under construction at the Nakajima Airplane Works at Otamachi. The Japanese press recently carried the following in connection with this plane:

The 20-seater bombing plane which has been under construction at the Nakajima Airworks, Otamachi, on order from the military authorities is now complete and will be transferred to them toward the end of this month. The plane wings measure 111 feet from tip to tip and 15 feet in breadth. The fuselage is equipped with three Bristol Jupiter engines of 450 horsepower and has two receptacles each, measuring 27 feet in length and capable of storing about 2,500 pounds of bombs in each. The radius of action will extend over 50 hours.

c. The Japanese press, quoting an alleged interview with the naval authorities, recently carried articles to the effect that an Italian-type mooring mast will be constructed at Kasumigaura for mooring the newly completed *N–3* dirigible. These articles state that this tower is to be 65 feet high and of all-steel construction.

NOTE.—This dirigible was recently purchased from Italy and assembled in Japan by General Nobile. She is a sister ship of the Norge.—ED.

d. The Hochi newspaper recently carried an article describing night antiaircraft practice by the Yokosuka Naval Station, which was held from midnight to early in the morning. According to this article, 10 machines of the Kasumigaura Naval Port Air Group, representing an invading force, flew over the Yokosuka naval port at midnight and dropped bombs, incendiary and gas, on the outskirts of the town in all directions. The significance of this article lies in the simulated use of incendiary and gas bombs by the Japanese Air Force.

e. Pacific flight: A draft plan outlining the details of the proposed nonstop flight from Tokio and Seattle, to take place early next May, with the Imperial Aviation Society acting as the sponsor, was prepared and adopted by the preparation committee of that society recently. This draft will be studied by the directors of the society when they next will meet.

According to this draft, this flight is to be attempted either in May or September of next year, when weather conditions are at their best, with either a hydroplane or a landplane capable of flying continuously for 5,000 miles or more. The trip will be made from Tokio over North Pacific, along the Kurile and the Aleutian Islands. The cost of the undertaking is estimated at 700,000 yen.

The machine will be so constructed that two men can go on the trip, since it is believed that one man can not stay at the controls for 50 hours straight. About 5 tons of gasoline and food sufficient for two men for a week will be carried. Previous to the commencement of the transocean flight several practice flights will be made, and a

special machine will be built for that purpose. The plane which is to be used on the great flight will be designed and constructed after several practices have been conducted. The Ishikawa-jima and the Kawanishi companies have been asked to build these planes.

C. POLITICAL

1. Japanese policy re Manchuria and Mongolia.

[*Source: M. I. D.*]

The principles enumerated below are believed to have been recently agreed upon. While they contain nothing new nor at variance with Japanese practice in the past, it is the first time Japanese policy has been stated so clearly and so completely. Principle No. 4 should be interpreted to mean that Japan's "whole-hearted support to the Government in actual power," precludes any civil war in Manchuria.

FOR MUTUAL BENEFIT

a. In order to maintain peace in Manchuria and Mongolia so as to enable Japanese and foreigners to live in the country at ease, the Imperial Government, based upon the great principle of "Open door and equal opportunity," will cooperate with any country for the industrial and economic development of the country.

RIGHTS TO BE RESPECTED

b. Under no circumstances, however, will the Imperial Government permit anyone to challenge Japan's geographical and historical position of superiority. Japan will take the most vigorous steps to that end.

ON LOCAL PROBLEMS

c. Pending the establishment of a powerful Central Government in China, the Japanese Government can only deal with the local governments in seeking solution of local problems. The Japanese Government, therefore, will negotiate separately with the Hankow and Nanking Governments in dealing with problems of their respective locality; in the same manner the Japanese Government will give recognition to the authority of the Mukden Government as regards matters concerning the three eastern provinces.

FOR STRICT FAIRNESS

d. The foregoing policy is based on present day conditions; whoever may take the place of the Mukden faction in the future is no concern to the Japanese Government. The Japanese Government will never interfere with the internal administration of these local

governments. Not only that, but to whoever may come into actual power in the future, the Japanese Government will give whole-hearted support with regard to maintenance of order in Manchuria and Mongolia.

WITH MAN POWER

e. Generalissimo Chang Tso-lin is in actual power in three eastern provinces to-day. Consequently the Japanese Government will negotiate with Generalissimo Chang Tso-lin as regards problems concerning Manchuria and Mongolia.

TO SOLVE PENDING ISSUES

f. With Generalissimo Chang Tso-lin, the Japanese Government will open negotiations with the object of bringing about solution of all problems, including the concession issues, based on the newly established Japanese policy in dealing with questions concerning Manchuria and Mongolia.

FOR BETTER RESULTS

g. It is said in some quarters that the Government may attach more importance to the authority of the South Manchuria Railway Co., or that the Government may extend the power of the Japanese Government in the leased territory of Kwantung, but these reports are groundless. The Japanese Government will support the present system; only the Government will endeavor to bring about better coordination among the Government institutions in Manchuria, so as to effect still greater unity in carrying out orders from the home Government.

TOKYO TO DIRECT

h. The Japanese Government policy is that problems concerning Manchuria and Mongolia should be disposed of directly by the home Government, and that it should not be left to the discretion of any-one of such institutions as South Manchuria Railway Co. or the Kwantung Government.

EACH IN RESPECTIVE SPHERE

i. As regards the negotiations with local Chinese Governments in connection with the problems concerning Manchuria and Mongolia, it shall be carried out by Minister Yoshizawa of Peking, President Yamamoto of the S. M. R., Viscount Kodoma, Governor General of Kwantung and Consul General Yoshida of Mukden, in accordance with the nature of the problem.

TO MAKE INITIAL STEP

j. As an initial step in the materialization of the newly established policy, the Japanese Government will open negotiations with Generalissimo Chang Tso-lin, offering to abolish extraterritoriality in the three eastern provinces, and in return, to request him to permit Japanese residents in three eastern provinces to live mingled with the Chinese in the Chinese quarters, sharing the rights and obligations of the Chinese residents.

NOTE.—The Foreign Office recently called home a great many of its representatives in China for the purpose of a conference in which the new Premier and Foreign Minister set forth his China policy. This might be briefly stated as—cultivation of Chino-Japanese friendship, peace in Manchuria (enforced if necessary), and security of Japanese lives, property, and interests.—ED.

MEXICO

A. POLITICAL

1. Current status of international relations.

[*Source: M. I. D.*]

Mexico has now been recognized by all the important powers. The current international situation, however, is far from satisfactory, due primarily to legislative and executive action relating to articles 27 and 123 of the constitution.

UNITED STATES

Diplomatic relations between the United States and Mexico were resumed on September 3, 1923, as a result of the successful negotiations of a joint commission which convened in Mexico City May 14–August 15, 1923. Shortly after the resumption of diplomatic relations, two claims conventions drawn up by the joint commission were signed by representatives of the respective Governments and duly ratified. The Special Claims Convention provides for the settlement of all claims arising from losses or damages suffered by American citizens through revolutionary acts, accompanying the disturbed conditions in Mexico within the period from November 20, 1910, to May 31, 1920, inclusive; while the General Claims Convention provides for the settlement of all claims by citizens of either country against the other, arising since July 4, 1868, except such claims of American citizens as are included under the Special Claims Convention. The work of establishing claims has been progressing under the General Claims Convention, but has been at a standstill under the Special Claims Convention since April 26, 1926, following a dis-

agreement among the commissioners as to the liability of the Mexican Government for American claims growing out of the Santa Ysabel massacre of January 10, 1916.

Relations between the United States and Mexico became strained in June, 1925, as a result of a public statement issued by the American Secretary of State, charging the Mexican Government with failure to live up to the obligations with respect to American property assumed under the claims conventions, and with other delinquencies affecting American citizens. The adjustment of certain local conditions by the Mexican Government relieved the tension for a time, but, soon afterwards, laws which were enacted for the purpose of giving effect to the provisions of article 27 of the constitution gave cause for renewed apprehension. Two of these laws, the so-called alien land law and the petroleum law, are especially viewed by the United States Government as prejudicial to American interests, being deemed retroactive and as threatening the virtual confiscation of property of American citizens. These laws further require that foreign property holders relinquish the right to invoke the protection of their governments in respect to their property, under penalty of forfeiture to the nation, a requirement which the United States Government considers can in no way affect its inherent rights and duties as a government toward its citizens and their property wherever they may be located.

After negotiations covering a period of more than 10 years, the fundamental question at issue between the two countries remains practically unchanged, namely, the question of adequate protection of personal and property rights of American citizens in Mexico. Improvement in public order and the establishment of joint claims commissions may serve as checks against illegal acts infringing American interests, but the threat of American property rights, as such rights are understood by the United States, through legal or authorized means, is even more pronounced now than formerly by reason of the laws and regulations recently enacted. The negotiations have shown that while both governments nominally agree that the provisions of the Mexican constitution may not be given retroactive effect, and that vested rights acquired prior to May 1, 1917, should be respected, there exist different conceptions of the principle of nonretroactivity and of the definition of acquired rights, preventing a mutually satisfactory understanding of the practical application of the constitutional provisions. The general understanding reached by the commissioners of the two countries in 1923, which formed the basis for United States recognition of the Obregon régime and solved in a measure the difficulties existing as to the interpretation of article 27 of the constitution, has virtually lost its efficacy as a measure of security, since the Calles Government does not consider it as binding

future Presidents, or the legislative and judicial powers, to a definite course of action.

The Mexican Government holds that the restriction, modification, or curtailment of an existing right does not imply confiscation, and that there is a distinction between those commonly called "acquired rights" and mere rights, interests, and expectations, it being necessary that some positive act be performed indicating the exercise of a right before the right is "acquired"; and further, that to claim that the Mexican Government must protect and safeguard not only acquired but potential rights is to impart to the idea of retroactivity an unjustified breadth. The United States Government, on the other hand, maintains that lawfully vested rights may not be impaired by subsequent legislation and that the interpretation given by the Mexican Government to "acquired" or "vested" rights deprives the term of the very essence of its meaning.

The United States Government, in undertaking negotiations looking toward the protection of the rights of its citizens in Mexico, disclaims any intention of interfering in the purely domestic affairs of that nation. The justification for its action rests on the principle that when a nation admits aliens within its territory, such aliens come and go not only under the rights and duties imposed by domestic law, but also under the rights and duties imposed by international law. It is upon the recognized principles of international law and equity that the United States Government has sought to base its negotiations.

NOTE.—It will be remembered that by the 1917 constitution subsoil rights were made the property of the Government, as they had been prior to Porfirio Diaz. The law of 1925 would compel mineral companies to exchange vested rights for a 50-year concession and agricultural companies to reorganize so as to allow for a majority of Mexican-held stock. Oil interests represent less than half of American investments in Mexico.—ED.

LATIN AMERICA

Mexico maintains friendly relations with virtually all the Latin American countries. Aside from the natural ties of race and history, fear of territorial aggrandizement on the part of the United States in the application of the Monroe doctrine serves generally to hold these countries together in sympathetic accord.

For some time there has been a very noticeable desire on the part of the Mexican Government to lessen the influence and prestige of the United States in Latin America, and to establish a closer union of the Latin American countries under the political and cultural leadership of Mexico. Efforts toward the attainment of these two ends have been particularly marked in Central America during the last few years, beginning in the adjoining country of Guatemala and

extending down into the Republic of Panama. Gifts have been presented to the governments, mediocre diplomatic representatives have been replaced by men of superior qualifications, international telegraph, and radio communications have been improved, social intercourse with Mexico has been encouraged, scholarships to the military school at Chapultepec have been offered, economic projects of mutual benefit have been proposed, a well-organized program of propaganda has been advanced, and secret meddling in internal political affairs has been resorted to.

CENTRAL AMERICAN-MEXICAN-UNITED STATES RELATIONS

GUATEMALA

That Guatemala should have been the initial recipient of Mexico's attentions is due partly to her political importance in Central America, but primarily to her strategic location with respect to Mexico. Her geographic proximity insures a continuous front served by interlocking lines of communication in the event that war makes the two countries allies, and in the event that it makes them enemies, offers a very serious threat to Mexico's rear.

Guatemala accords the United States an influence in her foreign and domestic affairs such as no other nation enjoys. This has been the policy of all Guatemalan administrations for the past 25 years (with the exception of the brief Carlos Herrera régime in 1920–21), based more on economic necessity and a latent fear of Mexico than on real friendship. Guatemala's fear of Mexico rests in the possibility of the latter extending her territory farther into Guatemala (the Mexican State of Chiapas and a part of Tabasco were at one time a part of Guatemala), and in the infiltration of socialistic doctrines and radical labor tenets among her ignorant Indian classes, through Mexican propagandists. The Guatemalan Government is superficially amiable toward Mexico, and lacks courage to reject officially or publicly Mexican political intrigue. Public opinion, if such may be said to exist, is at heart anti-American and pro-Mexican, though government officials and the majority of the educated classes are anti-Mexican. The recent disturbances in Nicaragua between the Liberals and Conservatives has tended to draw the Mexican and Guatemalan Governments closer together because of their common sympathy for Sacasa.

HONDURAS

The relationship of Honduras with the United States is one of complete accord, this being the traditional attitude, but accentuated at present by the weakness of the Honduran Government and its resultant dependence upon the financial and moral support of the United States. Mexico is said to be assisting the opposition in its

efforts to overthrow the Government. Honduras was the only one of the Central American countries to recognize, spontaneously, the Diaz government in Nicaragua, thereby following the lead of the United States.

SALVADOR

While Salvador is not an admirer of the Mexican, she has been the recipient of many favors from the Mexican Government and may be looked upon as willing to continue to avail herself of Mexican favors so long as it proves unembarrassing. She may even welcome the aid of Mexico in procuring a much-desired corridor to the Caribbean at the expense of Honduras. Salvador has risen to the position of principal military and economic power in Central America and is therefore the object of special consideration from the Mexican viewpoint. Salvador is friendly toward the United States, but her relations are devoid of any sentimental feeling, being dependent upon the need she has for the guardianship of the United States and her inability to find similar financial assistance elsewhere. Salvador's recognition of the Diaz government in Nicaragua apparently resulted from a misunderstanding of the attitude being taken in the matter by the Government of Guatemala, whose political leadership in Central American affairs she respects.

COSTA RICA

The isolated geographical situation of Costa Rica has influenced her in maintaining a policy of political isolation. She is reluctant to become involved in the internal affairs of her neighbors, and also sustains an independent position with regard to the United States. Both at the Fifth Pan American Conference in 1923 and at the Bolivar Congress in 1926 she displayed considerable initiative in upholding Latin American interests and defending them against "outside," presumably United States, interference. While the present government is friendly toward the United States, there is some resentment felt because of the latter's refusal to grant recognition to the Tinoco régime (1917); Costa Rica also objects to the United States-Nicaraguan canal treaty, claiming that her rights in the San Juan River have been jeopardized. The Costa Rican Government refused to recognize the Diaz government in Nicaragua and permitted Costa Rican soil to be used by the Liberal revolutionists as an outside base of operations. Along general lines Costa Rica may be said to be sympathetic toward Mexico and to afford a somewhat fruitful field for Mexican propaganda effort.

NOTE.—Honduras and Salvador have also strenuously objected to the Bryan-Chamorro treaty of 1913, which granted the United States exclusive canal privileges in Nicaragua. Their basis of objection is that they, as well as Nicaragua, are interested in the status of the Gulf of Fonseca, the western terminus of the projected canal.—ED.

NICARAGUA

Mexico, like the United States, refused recognition to the Chamorra government in Nicaragua, but in defiance of the policies of the United States, actively aided Saçasa and his liberal followers in an attempt to overthrow the Chamorra government by force of arms. She was the only country to accord recognition to the rival government established by Sacasa after the United States had recognized Diaz as the constitutional head to succeed Chamorra, in November, 1926. Since 1910, when United States Marines were landed in Nicaragua, the United States has occupied a peculiar position in Nicaraguan affairs. The special interest of the United States rests in her treaty relations involving the Nicaraguan canal project, and in United States supervision and control of Nicaraguan finances. Relations with the United States are outwardly friendly through necessity, but there is considerable feeling in nongovernment quarters against the presence of American Marines. The latter situation affords an opportune opening for Mexican propaganda against United States prestige and influence, not only in Nicaragua, but throughout Latin America.

It is obviously not yet the intention of Mexico to defy the United States openly in Latin American affairs, except where opportunity such as in Nicaragua openly presents itself. She is building slowly, evidently content in first creating a pro-Mexican sentiment, and at the same time discrediting the United States wherever possible by taking the more popular side of public issues. She is happy to gain even a minority to her side, and her efforts are beginning to bear fruit. In the coming Pan American Conference, scheduled to convene in Havana early in 1928, it is not unlikely that some evidences of Mexico's labors along this line will be encountered. While her efforts have been most marked in the Central American countries, there have been signs of more limited activity elsewhere in Latin America. The recent raising of her diplomatic representations in Argentina and Cuba to embassies, following similar action in Guatemala in 1926, is significant.

NETHERLANDS

A. NAVAL

1. Netherlands destroyers.

The destroyer program consists of six Yarrow-type destroyers, one of which, the *De Ruijter*, is under construction by K. M. de Schelde in Flushing, and three, *Evertsen*, *Kortenaar*, and *Piet Hein*, at the plant of Burgerhout, Rotterdam. The remaining two of the

destroyers authorized and ordered in 1926, still unnamed, have not yet been laid down. The first four destroyers are termed the "project of 1924 and 1925," and the remaining destroyers are called "the project of 1926." The general description is given in Jane's "Fighting Ships" of 1926, and, as stated there, these vessels have been designed throughout by Yarrow and are being constructed under Yarrow's supervision. The destroyers of the 1924 and 1925 project are 90 per cent similar to the British destroyer *Ambuscade*, built by Yarrow. The Dutch destroyers, however, are fitted with Parsons turbines, while the *Ambuscade* is fitted with Brown-Curtis turbines.

The propelling machinery of the Dutch ships is a two-shaft arrangement of geared turbines (Parsons), single reduction. Two cruising turbines are fitted, driving the high-pressure ahead turbines spindles through reduction gearing and an astern turbine is incorporated in the exhaust casing of each low-pressure ahead turbine. The total weight of machinery, including water in boilers and condensers, is 475 tons. The designed total horsepower of the propelling machinery is 31,000 for a speed of 34 knots at 475 revolutions per minute of the propeller. The speed of the high-pressure turbines at full power is 3,800 revolutions and of the low-pressure turbine is 2,400 revolutions. The cruising turbine is designed to develop 2,000 horsepower at 3,800 revolutions, which will give the vessel a speed of 15 knots at 230 revolutions of the propeller.

The designed working steam pressure is 275 pounds per square inch with a superheat of 100° F.

The machinery is placed in three contiguous compartments placed as usual in the central portion of the vessel fore and aft. There is one boiler in the forward boiler room and two boilers in the next compartment aft and the machinery in the third compartment. The heating surface of each boiler is as follows:

	Square feet
Generating surface	7,200
Superheating surface	2,200
Air heating surface	1,670

[*NOTE.—The British "Ambuscade" differs from this ship in the arrangement of boiler capacity. In the "Ambuscade" the forward boiler is one-fifth of the total boiler capacity and the other two boilers are each two-fifths of the boiler capacity.*]

Each boiler is fitted with 11 burners and will be equipped with the Mumford or the Anthony feed regulator. The safety valves are of the Cockburn type.

The condensers are two in number, of the Weir regenerative type, 7,000 square feet of cooling surface each. The tubes are packed at each end and are of 70 per cent copper, 29 per cent zinc, and 1 per cent tin. The air pumps are the Weir's "Paragon" type. The

circulating pumps, Allen patent, are turbine driven, each with a capacity of 10,000 gallons per minute. Three Weir's lubricating-oil pumps are installed, each with a capacity of 6,500 gallons per hour. There are two fire and bilge pumps, one of which is steam driven and one electrically driven. There are two turbine-driven feed pumps located in the engine room with a total capacity of 320,000 pounds of water per hour. In addition there are two feed pumps in the after boiler room and one feed pump in the forward boiler room, the boiler-room pumps being direct steam driven (reciprocating), Weir's type. The feed tank has a apacity of 7 tons and the reserve feed tank a capacity of 20 tons.

The fuel-oil pumps are Weir's, steam driven, reciprocating, two being located in the after boiler room and one in the forward boiler room. Two oil heaters are fitted in each boiler room. A duplex oil filter is located between each heater and the burners.

There is one evaporator with a capacity of 80 tons of fresh water per 24 hours. The forced-draft fans and fan engines, of the Yarrow Terry type, are located four in the after boiler room and two in the forward boiler room. The electrical plant consists of two turbine-driven generators of 60-kilowatt capacity and one oil-driven generator of 20-kilowatt capacity. There is 1 air compressor, 1 steam-driven steering engine and 1 refrigerating plant.

The destroyers of the project of 1926 will have a steam pressure of 400 pounds, with a superheat of 240° F. The condensers' cooling surface will be 12,800 square feet. One condenser will be tubed with tubes of 70 per cent copper and 30 per cent nickel and one condenser will be tubed with tubes of Monel metal. Two Weir's duplex lubricating-oil pumps, steam driven, and one electrically driven lubricating-oil pump, each of 10,000 gallons per hour capacity, will be installed. Two oil-driven electric generators will be installed instead of the one of the previous program.

For the purposes of facilitating external inspection of the boiler tubes, each tube was being passed through a cold galvanizing process. This process accentuated material defects on the outside of the tube, such as pits and other abrasive flaws.

Silimum, an alloy of 11 to 14 per cent silicon, not more than 0.6 per cent iron, not more than 0.5 per cent manganese, and the balance aluminum, was being used for pump ends and all straight lengths of low-pressure piping throughout the ship. The tensile strength of silimum was stated to be of 12 to 14 tons per square inch with an elongation of 7 per cent.

These destroyers are being built with a view to service in tropical waters, Dutch East Indies, and will do service as small cruisers. Therefore they are to be fitted with an auxiliary electrical installa-

tion supplied by the oil-driven generator that will handle all of the ship's service at anchor and will permit closing down the entire boiler installation.

The designed air-heating circulation of the boilers, by ducts through the uptake down back of the furnaces to the front of the boiler under the furnace and up to the burners, has been found to require modification. The original installation was found to give so much heat that the boiler rooms were untenable for the personnel. Circulation has, therefore, been reversed and the incoming air now passes under the furnace and up the back, thence through ducts in the uptake to the burners.

The fuel-oil capacity of these vessels is 330 tons. The corresponding British destroyer *Ambuscade* has a capacity of 305 tons.

NOTE.—These boats are of 1,620 tons, while the British "Ambuscade" is of 1,290 tons. The Dutch boats will mount forty 4.2-inch guns, torpedo tubes, depth charges, and one seaplane.—Ed.

B. AERONAUTICAL

1. Company for construction of aircraft Aviolanda.

The above-named aircraft plant in Rotterdam, now engaged in building 18 Dornier Wals for the Dutch Government's East Indies service, was recently visited. Five planes of this type have been previously constructed in the Dornier plant in Pisa, Italy, and are now in service in the Dutch East Indies. This aircraft is of course similar in appearance and general features to the commercial Dornier Wal, certain modifications having been made since it is to be used for naval purposes. It will have a full loaded cruising radius of 1,267 miles at a cruising speed of 99.42 miles per hour. Full military load will be 5,291 pounds exclusive of radiator water. It will carry a war crew of five, namely, pilot, assistant pilot, forward gunner bomber, after gunner, and radio operator. The bomb sight is of the Nedinsco Venlo (Zeiss) type. The bomb sight will be located in the forward cockpit, being placed in position through a watertight handhole after the plane has taken the air. It is expected that each plane will carry four 50-kilogram bombs, these being suspended from each side of the hull and electrically released. Double machine guns (Lewis type made in Holland) of 7.7-milimeter caliber will be mounted in the forward and after cockpit. Ample room is provided for the radio installation and operator and for navigational purposes just after the pilot.

It is the belief that it was originally intended that these aircraft be assembled at the above-named plant, all completed parts being received from the Dornier Friedrichshafen plant. This is not, however, the case. The Holland plant is actually constructing the great

majority of the parts from the rough materials received from German sources. The construction is of course virtually the same as that followed in other Dornier plants though the engineers of the Dutch plant have devised some new and ingenious jigs that simplify construction and materially reduce costs. These 18 planes were scheduled for delivery in 1927 but this schedule is not likely to be met since minor changes are from time to time required by Government authorities, thus naturally delaying production. With good runway facilities, these planes can be readily hauled out of the water on wheels easily attachable to the stub wings—hauling-out trucks are not used.

There was originally much criticism of the Dutch Navy for contracting for Dornier type aircraft built outside of Holland—hence the formation of this company. Upon inquiry, however, it was stated by those in authority that at the time the original contract for Dornies Wals was let, there was no aircraft manufacturer in Holland capable of constructing a satisfactory type of seaplane or flying boat. No doubt the letting of the original contract to Dornier gave considerable impetus to Dutch designers and accounts in part for the production of the Fokker *T 4*. The present plans include 60 twin-engine bombing seaplanes for the Dutch East Indies by 1930, and though originally it was intended that the great majority of these be Dornier Wals, it is now believed likely that the Fokker Co. will provide at least a fair percentage of the total required.

SPECIAL ARTICLES

FRENCH NAVAL REGENERATION

The following are extracts from an interesting article recently appearing in the Revue des Deux Mondes. This article is an excellent presentation of France's naval case.—Ed.

In the "statement of motives," which precedes the bill known by the name of naval statutes, which fixes the composition of our squadrons, it is said that whatever may be the evolution and necessities of our foreign policy in the future, "the size of the fleet must always be determined by the double necessity of guaranteeing the liberty of our essential communications by sea, particularly with North Africa, and of insuring the protection of our home and colonial sea frontiers, in connection with the units specially charged with their permanent defence." The maintenance of our communications with Algeria, Tunisia, and the West Coast of Africa, the power to repel any invasion by sea of the mother country and of its African Empire constitute necessities for us that are no longer disputed by anyone.

One circumstance renders the realization of this double objective particularly difficult: France sitting astride two seas is obliged to face all eventualities both in the Mediterranean and in the Atlantic. On the one hand, she is obliged to reckon with the naval forces left to Germany by the Treaty of Versailles; on the other hand, the time-honored policy of our country has always consisted in maintaining a margin of naval superiority over the other nations bordering the Mediterranean. The great injustice of the pact of Washington against which we will never cease to raise our voices, consisted in disregarding this duality of our naval functions: for it is vain to hope that our forces can be concentrated without danger through the Straits of Gibraltar. Whatever may be the course of events we will always be forced to maintain squadrons to watch one or another of the two seas. It is therefore evident that French strategy is essentially defensive and preservative. It does not aim in any way at the mastery of the sea nor at any form of hegemony. It nowise conduces to a colonial imperialism consisting in extending the distant limits of our overseas domain. France has only one ambition, viz. to maintain this domain intact and, above all, to defend the home land.

It is a well-known fact that we have to call upon all the dispersed elements of our vast empire for the purposes of mobilization owing to our low birth rate. At the present time, 180,000 natives are num-

bered among the 670,000 men composing the French Army. We are obliged to assemble these colonials at those points of the globe where their presence is most necessary and especially on the Rhine. To insure the transport of these troops, our sea routes must be kept open. It is evident that this would be easy if we had England with us, as it is reasonable to suppose. We must nevertheless consider what would happen if Great Britain remained neutral; we would then have to insure the freedom of the Marseilles-Algiers and Dakar-Bordeaux routes by our own means.

This necessity implies the maintenance in the Mediterranean of a force at least equivalent to that of the strongest Mediterranean power, and, in the Atlantic, of a squadron very much superior to the presumed German fleet.

But hypotheses can not be limited to the problematic examination of a Franco-German war of revenge. Other redoubtable contingencies may crop up. What will be the war of the future? Can one hope that it will be localized to one point of the globe? Is it not rather to be feared that the conflagration will spread from one country to another until all nations are involved and all continents are on fire? Whatever may happen, the war of the future will be above all a war of movement and of concentration of forces. The sea routes will be the natural tracks along which will flow the streams of troops and materials which have to be assembled on limited points. Considered from this special angle, the great conflagration which we hope will never take place, but whose possibility should nevertheless be examined, would take the form of a collision between races. It is not difficult in this case to foresee the part the French colonies and especially the French Navy would have to play. This part would consist in welding the scattered fragments of our colonial empire to the mother country by regular and indissoluble bonds, in defending the great sea routes in behalf of France and her allies, and finally in acting on the adversary's lines of communication by destroying his convoys. It is indisputable, in fact, that this necessity becomes all the greater as the communications between continents develop.

The French colonial empire is predestined to a mission of this kind by its very nature. We have territories along all the great routes of the world. We do not only speak of the Mediterranean whose western portion we close by the quadrilateral formed by Bizerta, Ajaccio, Toulon, and Oran. We are also well situated on the road to the Far East at Casablanca, Dakar, Diego-Suarez, Saigon, and Samerang. We also have bases in the West Indies, such as Port-de-France, and in the Pacific, where storm clouds are rising, New Caledonia, Tahiti, and Rapa. Their utilization by our fighting units, high seas fleet, submarine fleet, and aircraft would enable France to

play an important part in any struggle. Among the most disturbing prospects in view is the possible birth of an Asiatic peril which, under the colors of communism, would once again seek to hurl barbaric hordes against the civilized nations. This new invasion, unlike that of the Huns, would not only follow the great land routes which from time immemorial have led the savage invaders from the frozen steppes toward the smiling provinces of Gaul; like the Normans, it would also follow the northern and tropical sea routes. Therefore to stop this menace and to put an end to it forever the support of our ships is necessary. A close alliance between France and England, the nations mainly concerned and against whom the threat is chiefly directed, is therefore an immediate necessity. They should unite through the community of their aspirations and the identity of their means for the defense of their distant inheritance for which such a heavy price has been paid in blood and suffering. Our English friends should reflect that our means are very feeble, considering our redoubtable task of preventing outbursts on the part of these still semisavage tribes we are attempting to educate to the ways of civilized peoples. The Minister for the Navy defined this new aspect of the world a short time ago in a particularly expressive formula by saying that since the war international policy had ceased to be continental and had become "oceanic."

These considerations were taken into account when our programs were drawn up. Let us see how they have been realized.

A law of April 18, 1922, authorized the driving of the first rivet of a coherent plan of construction which would be spread over several years. This law ordered that the first section of this vast plan should be put in hand; it provided for the completion of three 8,000-ton cruisers, six 2,500-ton destroyer leaders, twelve 1,500-ton destroyers, and twelve submarines, six of 1,150 tons and six of 600 tons. Further, it was decided that a battleship, the *Béarn*, on which work had been suspended, should be fitted out as an airplane carrier.

Two years later, a law dated April 12, 1924, ordered that the second section of the program should be put in hand; this included two cruisers, six destroyers, and two 1,500-ton submarines of the *Redoutable* type. On this occasion, the tonnage of our cruisers which was judged to be insufficient was increased from 8,000 to 10,000 tons, the maximum fixed by the conference of Washington. But the Minister of the Navy did not intend to fall back into pre-war errors and allow interruptions to affect the impetus of our effort. On July 13, 1925, Parliament was called upon to pass on the third section which included the construction of one 10,000-ton cruiser, three 2,700-ton destroyer leaders, four destroyers, nine submarines, one mine layer, and one airplane carrier.

Finally, M. Leygues did not allow the houses to separate without having obtained a vote on August 4, 1926, that one 10,000-ton cruiser, three 2,700-ton destroyer leaders, four destroyers, seven submarines, and certain auxiliary craft should be placed on the stocks. Parallel to these laws for the renewal of the High Seas Fleet other legislative provisions fixed the commissioning of the flotilla of coastal defense submarines as follows: 9 on June 30, 1923, 4 on April 29, 1926, and finally 4 in 1927, bringing the number of coastal submarines to be built up to 17. If the number of units authorized by the different laws we have just cited is calculated, we will see that the vessels built or building include 7 cruisers, of which 3 are of the *Duguay-Trouin* type of 8,000 tons and 4 of the *Duquesne* and *Suffren* types of 10,000 tons, 12 destroyer leaders of 2,500 to 3,000 tons, 6 *Jaguar* and 6 *Guépard*, 26 destroyers of 1,500 tons, 12 *Bourrasque* and 14 *l'Adroit*, and 47 submarines. Not only have the ideas of the department not varied during the past five years with regard to the composition of our naval forces, but it may also be said that hardly any change has been made in the characteristics of the units composing these forces. The ideas of our staff office further coincide with the plans outlined in October, 1922. These conceptions now represent 125,000 tons of Washington tonnage for surface craft and 35,000 tons for submarines. The vessels placed on the stocks from 1922 to 1925 comprise 57,000 tons of cruisers, 12,250 tons of destroyer leaders, 32,520 tons of destroyers, and 8,280 tons of submarines.

It will be seen from the preceding list that our present plan is to abandon the construction of ships of the line and to concentrate exclusively on light surface craft and submarines without prejudice to aircraft. And nevertheless our entire fleet of battleships consists of six vessels built previous to 1915 and of which only three carry 13.5-inch guns. What are these pygmies compared with the giant capital ships of Great Britain and the United States? Our only consolation for not building any is to think that Germany will never have any and that Italy possesses one less than ourselves. This systematic relinquishment of the ship of the line has aroused certain naval circles which are carrying on a campaign for the substitution of the battleships (to which we are entitled by the Washington agreement) for certain 10,000-ton cruisers.

These advocates of the capital ship consider that the security of our ocean lines of communication can not be assured without these powerful units capable of sweeping the enemy's light forces out of the Mediterranean, of supporting our own light forces in the destruction of submarines, and finally of cooperating with our allies, bringing them the solid framework of a battle fleet on which they could rely. This opinion is shared by all those who would like the heavy artillery to mingle its voice with that of the medium-sized guns,

the only ones that can be carried on light cruisers. Further, attention is drawn to the fact that, contrary to the general belief, the cost per ton of the heavy capital ship is less than that of light surface craft. In the same way the armament of capital ships for an equal tonnage is not such a heavy drain on the budget. A capital ship of 20,000 tons requires a smaller crew and less stores than three 10,000-ton cruisers. The last argument put forward by the partisans of the capital ship is that it is important not to leave our shipyards too long unprovided with orders for heavy vessels in order that they should not lose the experience required in building these units and in the production of armor plates and, in a general manner, in the solution of all the scientific problems which crop up in a ship of the line, the veritable synthesis of offensive and defensive naval science.

We think, in fact, that both on account of their seagoing qualities, their capacity to take punishment, and above all their offensive qualities due to their powerful guns, battle cruisers should have their place in the ranks of our squadrons. They alone, in fact, are capable of sweeping the sea and of constituting an effective barrier in front of our convoys. It is therefore desirable that some of these units should be put in hand immediately. But our financial means are not unlimited. The French Admiralty came to the conclusion that it must do what was most needful. This is why it fixed on the types of ships it considered most urgent to build. Of course, it must not be forgotten that the fundamental principles of naval doctrine require the presence of the capital ship in a squadron. The latter can not act without being provided with all the fighting elements which accomplish this interconnection of the different arms recommended by all our naval critics. In the meanwhile we share the opinion of the general staff office: it is first necessary to reconstitute our fleet of light craft, submarines, and aircraft.

The results obtained have not failed to strike foreign observers. The following is an extra t from a technical paper, The Engineer (Great Britain):

> Without haste and without a stop the reconstitution of the French Navy is being carried on with steadfastness. The method which consisted in giving France a fleet of samples, as it was so appropriately called, has been abandoned. This has been replaced to-day by the multiplication of vessels built in series. A still more remarkable fact, contrasting with the previous policy is the laying down year by year of the tonnage authorized by a program of building spread over a number of years.

In the presence of this resurrection of our fighting forces, foreign sailors acknowledge the superiority of our methods. The French fleet, considered as inexistent less than five years ago, reappears on the high seas with all the prestige of a modern navy which knows how to combine the perfection of its equipment with the remarkable traditions of its officers and men.

For the success of our naval program is not only due to the steadfastness of those who elaborated it, but the commissioning of the units of this program also constitutes a remarkable technical success both for the technical department which designed these vessels and for the engineers of the private firms and of the naval dockyards which built them. After some delay inherent to the reorganization of the workshops after a too long period of inactivity, the units of the first section of the program made their appearance. Those of the second section, which profited by the experience gained, make up the lost time and appear hard on the heels of their elder sisters. On the whole the four sections of the program have been carried out with great regularity. In a very short time the whole of this fine fleet of light units will be in commission. One hardly thinks to-day of criticizing its composition. While the destroyer leaders can be reproached with being too lightly armed, this disadvantage is counterbalanced by their superior seagoing qualities. The results of the tests of all the ships have been brilliant; speed, which is the essential element of their military value, has exceeded the estimates in every case; the *Tigre*, which did over 36 knots, is the fastest ship in the world. We have before us a letter from an officer of high rank who has just returned from the cruise in the Atlantic with Admiral Pirot:

The more I see of them the greater is my conviction that our cruisers (it has already been possible to judge the other units in the Baltic) are masterpieces of naval architecture; the shape of their hulls is admirable. Engines and stokeholes are admirably equipped and the consumption of fuel oil is very moderate. Their seagoing qualities are remarkable; our cruisers do not give off any smoke at speeds of 20 and 22 knots. The great traditions of our famous builders, such as Sané and Depuy-de-Lôme, have been equaled. It is really extraordinary that after a period of over 10 years of stagnation or of stoppage in building our shipyards should have produced units which are models of their kind.

During the cruise in the Baltic, to which our correspondent alludes, the Scandinavian seamen gave a triumphant welcome to our destroyer leaders, destroyers, and submarines, so great was their admiration for the perfect behavior of these units. The Engineer has devoted eulogistic pages to our different types of ships. It says:

In developing her new flotilla of destroyers, France has avoided her old mistake of building vessels which are only formidable in calm waters. These strongly built destroyer leaders with high freeboard and powerful engines are capable of attacking in all weathers, and their armament of 5-inch quick-firing guns would render them dangerous antagonists even for a small cruiser.

Finally, The Engineer expresses the following opinion on our submarines:

The French engineers, whose experience and inventive genius are proverbial, have attached special importance to the reliability of the engines and, to judge by the prolonged cruises made by some of the new units, French postwar submarines are equipped with machinery in which every confidence can be placed;

their offensive power has been increased by the adoption of the 21.6-inch torpedo, a more formidable weapon than the British model of torpedo.

And the English journal, considering the main objective of the French Navy, which is to guarantee the immunity of the sea routes between France and Africa under all circumstances, concludes:

The object of French naval policy is about to be reached.

Moreover, it is easy to appraise the results obtained in the reconstitution of our fleet as regards quantity and quality by comparing these results with the programs carried out by the other powers. We apologize for this long list of figures, but they throw a light on to the weighty problems which agitate the world. The following ships (cruisers, destroyers, and submarines) have been launched between January 1, 1920, and January 1, 1927, without counting capital ships and airplane carriers: Japan, 116 ships, including 52 submarines; United States, 81 ships (35 submarines); France 44 ships (16 submarines); Italy 26 ships (1 submarine); England 18 ships (5 submarines). These figures would, however, have no meaning if they were not compared with the total tonnage, namely: Japan 216,000 tons (163,200 tons of surface craft and 52,900 tons of submarines); United States, 156,000 tons (124,800 of surface craft and 31,200 of submarines); England, 98,700 tons (90,100 of surface craft and 8,600 of submarines); France, 98,500 tons (84,500 of surface craft and 14,000 of submarines); Italy, 31,085 tons (30,130 of surface craft and 955 of submarines). These statistics call for extremely interesting commentary. First of all, we can see that France closely follows England in the reconstitution of the tonnage of her light forces (nonexistent in 1920) and that she has built twice as many submarines.

Her apparent total tonnage is equivalent to that of Great Britain, but in matter of fact, it is superior, France having built a greater number of units than her neighbor. As for Italy, we largely outstrip her, thus making up for all lost time as far as she is concerned. But the above list inspires serious reflection on the manner in which the United States and Japan are outbidding one another. The sky is overcast in the Pacific. Then what can be said of President Coolidge's appeal in favor of disarmament, since it is America who is taking a lead in the opposite direction? This simply means that the United States are uneasy about the tonnage launched by Japan. The former obliged Japan at Washington to accept a proportion of capital ships smaller than their own (3 to 5); Japan is taking her revenge by directing her efforts toward the formation of light forces and submarines in particular (52,900 tons against 31,000 for the United States). It is the story of France unjustly strangled at Washington and forced to forge arms of defense, repeated on a small scale.

If we study the composition of the program we will see that the different types of units are distributed in the following manner: Cruisers—Japan, 18; United States, 10; England, 9; France, 5; Italy, 1. Destroyer leaders—France, 6; Italy, 3; England, 2; United States and Japan, 0. Destroyers—Japan, 46; United States, 36; Italy, 21; France, 17; England, 2. Submarines—Japan, 52; United States, 35; France, 16; England, 5; Italy, 1. The nations have not drawn up their programs in the same manner. We are practically the only ones to build 2,500-ton destroyer leaders, but these are really small cruisers. Although subject to criticism, they answer to a tactical idea suitable to our mobilization. Japan and France have made their greatest effort in submarines, Italy in destroyers; with regard to Great Britain, if she does not build these vessels, it is because she already possesses imposing flotillas of them.

Since we are now acquainted with the number and total tonnage of the ships, let us study their characteristics. Most nations have launched big cruisers approaching the maximum tonnage of 10,000 tons fixed at Washington. Japan is an exception to this rule; she has built 18 cruisers varying from 3,100 to 7,100 tons. The 10 cruisers launched by the United States displace 7,500 tons. The tonnage of our destroyers, 1,500 tons, exceeds that of all other powers, which varies between 900 and 1,400 tons, the highest figure (Japan). The 36 destroyers built by the United States are 1,200-ton vessels. Thus we outclass all foreign destroyers in displacement and endurance. With regard to submarines, we hold the golden mean with our 1,150 and 600 ton types, other countries, England in particular, preferring greater displacements. We have no reason to envy anyone as regards speed. Our cruisers reach 33 knots. The speed announced by England is 32 knots. If the Japanese and American cruisers appear to be slightly faster, it is because they are smaller. Our destroyer leaders give 35.5 knots on the average; certain of them have exceeded 36 knots, a record. Finally, our 33-knot destroyers, which are slightly slower than the others in calm weather, would overhaul them in a choppy sea.

Let us examine the armament; three of our 8,000-ton cruisers can be criticized for only mounting 6-inch guns, but our new units possess eight 8-inch guns like those of England and Japan. On the whole the armament of our cruisers is equal to that of the others; it is even superior as regards torpedoes (12 tubes). Our destroyer leaders which carry five 5 or 5.5 inch and two 3-inch guns are more powerfully armed than any other unit of this class. Our destroyers with four 5-inch guns, one 3-inch gun and six torpedo tubes are better armed than those of other nations which only carry 4.7-inch guns. Our submarines, with their respective speeds of 16 and 14 knots and

their armament of 10 and 7 torpedo tubes, are every whit as good as those launched by other navies.

In short, when one casts a glance on the building programs of are world's navies one is happy to acknowledge our country's effort and, above all, the superiority of the composition and of the characteristics of the units of its program, units which have kept all their promises and have even given more than was expected of them. In its plans our staff office attached particular importance to obtaining better seagoing qualities in its ships than those of similar vessels belonging to other powers. They are capable of running at full speed in bad weather, as their tests have proved. Furthermore, for the armament of our destroyers we have kept to the largest size of ammunition that can be manipulated by hand in order to increase the speed of firing; speed, here we have the most valuable element of our naval program, be it a question of sea speed under all conditions or a question of gunfire.

The entry into the line of new units possessing superior seagoing and offensive qualities is the primordial factor of any naval regeneration, but it is not the only one. These ships must be put into training and prepared for battle in the hands of leaders and seamen worthy of utilizing them. This necessity has not been lost sight of by the department. Hardly had the ships of the first section been completed when the Minister for the Navy sent them on the distant cruises to which we have alluded. The vessels of the new program were admirably suited to this peaceful mission of bridging the distance between the mother country and the colonies. They were the excellent messengers of French industry and of the French Navy to foreign countries. Further, these long voyages were intended to put the vessels to a severe test and to inure officers and men to the sea while adapting them to the control of these entirely new and highly complex machines.

A light division composed of the destroyer leaders *Jaguar* and *Chacal*, the destroyer *Simoun*, and the submarines *Souffleur* and *Marsouin*, showed our colors in the Baltic for six weeks. A few months later a light squadron commanded by Admiral Pirot and comprising a number of destroyers and submarines in addition to the two 8,000-ton cruisers *La Motte-Piquet* and *Duguay-Trouin* made a long cruise in the South Atlantic, calling at Casablanca, Dakar, and Conakri in particular. In the meantime the naval air service, which had been completely reorganized, proved by remarkable long-distance flights that our machines are capable of covering the immense stretches of sea separating us from our overseas possessions in perfect security. Need we speak of the cruise in the eastern Mediterranean in Septem-

ber by the 6 E. I. Squadron, composed of three Goliath *F–16* seaplanes, which covered nearly 4,000 miles without a hitch? Shall we mention Lieutenant Bernard's magnificent performance on board a 420-horsepower seaplane, flying from the Etang de Berre to Majunga via the Niger and returning by the Nile Valley? Still more recently, Commander Guilbaud reached Marseille after covering 14,300 miles on the same route.

It is an almost immutable military law that the morale and behavior of a crew varies directly with the value of the vessel intrusted to it. On this score the corps of naval officers had grown extremely downhearted in the presence of the decline of our fighting units and of the great age of the ships placed under their command. The entry of these modern divisions has wrought a metamorphosis in the state of mind of officers and crews. It has rendered them confident in themselves and has inculcated the desire to improve their technical knowledge. The cruises have had another effect—that of giving a fresh attraction to the profession, of which the adventurous side has always captivated the young. A sailor's ideal has never been to act as a ferryman between an old hulk and the steps of the dockyards. To restore the pride and efficiency of the men, speak to us of a 34-knot cruiser, of a destroyer leader which can keep the sea in any weather, or of a 1,500-ton submarine. From all sides we are receiving testimony of a happy modification in the morale of the crews, which is thus once again becoming as excellent as at the time when, under the impulse of energetic leaders, French seamen were considered as the most excellent.

To those who are tempted to accuse us of imperialism in presence of the enumeration of our naval forces in service or undergoing completion, it is easy to reply that for over seven years France gave up all idea of building ships; even at the present time she does not lay down the battleships she is authorized to build by the pact of Washington. Others profited by this naval holiday to reconstitute their squadrons, which are now much stronger than ours. Take Italy as an example, whose fleet was only half as numerous as ours in 1914; she had succeeded in forming a navy stronger than ours before our first section was put into commission. This situation, which to-day has changed to our advantage, could not subsist without danger for our security. This revival "on the fluke of the anchor," as sailors would say to express its urgency, is all the more surprising as we return from a lower level. The world was accustomed to a redoubtable army, the successor to the heroes of the Marne and of Verdun, but it was thought that the French Navy was in a state of decay, that it was dying, that it was dead! But it came to life again. It is there ready

to play its primordial part in the system of general mobilization of the country. Not to know that we must concentrate our dispersed overseas forces by the sea routes is to overlook the very bases on which the defense of the country rests. We require merchant vessels to transport our troops for this concentration. We possess three and a half million tons. But these ships, veritable moving railways, must be protected throughout their hazardous course. Such is the function of our light surface units, patrols, and submarines. The use of the Marseilles-Algiers or Bordeaux-Dakar routes is as necessary to us as the use of the railway which connects these two points to Strasbourg or to Metz. It is because this eventuality of a naval mobilization is a question of life or of death to her, that France demands that the problem of disarmament should be examined as a whole and rejects President Coolidge's offer to study naval disarmament separately. We leave it to the society of nations to find the solution of this weighty question, taking into account what we have called our war "potential," i. e., the setting in action of all the available forces of the nation in arms, and by this we refer to both the home and overseas territories of the Republic.

The first conference of Washington has left us much bitterness. We there acquired the certainty that our friends of the United States of America do not consider the repercussions of naval armaments on our general plan of mobilization as they should do. Under no circumstances can France admit a limitation of the number of her light surface craft which did not take the importance of her colonial empire into account, as well as the existence of her two sea fronts and above all the necessity for her colonial regiments to be transported by sea. As long as any capital ships remain afloat France will never consent to the abolition of the submarine, the poor man's arm and the only one with which she can confront the imperialistic purposes of the capital ship, the rich man's weapon and symbol of countries with a gold standard in which, not without reason, the word "capital" qualifies "ship."

If it is ever a question of limiting the numbers of our light craft, submarines or aircraft, we insist that the length of the coastline (including that of the colonies) of the powers concerned as well as the size of the convoys to be sent by sea (this figure being determined by a formula which would be obtained by the coefficient of the home population in comparison to the overseas population, as a function of their reciprocal distance) should be taken as a criterion of this limitation. In support of our argument it is possible for us to cite some particularly suggestive figures, comparing the sea lines of com-

munication of the different nations and the respective lengths of their home and colonial coast lines added together. These figures are given below. Lines of communication: Great Britain, 70,000 miles; France, 36,000 miles; United States, 20,000 miles; Japan, 6,000 miles; Italy, 4,800 miles. Length of coast line including that of the colonies: England, 39,000 miles; United States, 16,000 miles; France, 11,000 miles; Japan, 7,000 miles; Italy, 5,300 miles. Is it not natural that these two factors should be taken into consideration when it is a question of fixing the naval forces of the maritime powers? It would be still more accurate to determine what we will call the *ton-kilometers* (i. e. the degree of activity of the naval convoys) carried in the case of war, to estimate what should be the respective sizes of the world's navies. We can not give this figure exactly without disclosing the secrets of our mobilization, but it is easy to obtain an idea of it by taking as a basis the documents we are already acquainted with, i. e., the length of the lines of communication along which we must station cruisers, patrols, aircraft, and submarines, and the population of the colonies compared with that of the mother country, reckoning the constitutive units of our colonial army in accordance with the laws fixing the military service of our overseas subjects. If our calculations, which alone appear logical, are accepted, it is certain we would have the first place after England on the Washington list. But we will refuse Artaxerxes' present of a naval disarmament solely based on the financial capacity of States which is an essentially variable factor. The life of a people is not measured with gold nor by the rate of exchange.

Ours is a pacific country. We have suffered too much to wish for another war, but no race exists which has the instinct of its preservation and the sense of its vital interests to the same extent as ourselves. This enables us to understand the magnificent impulse of the nation toward the naval program we have just analysed. Let us reflect, in order not to exaggerate its import, that it is hardly five years since we set to work; we are only at the beginning of a new era; it should assert itself in the years to come. We should persevere in our program of naval expansion, pursue its execution without faltering, adapt our means of obtaining stores to the requirements of the new units, perfect the design of our ships while remaining within the limit of our previous units, develop the experience of our crews by sending them to sea and finish the thankless task of eliminating useless land services. The country can not be too highly congratulated on the effort it is making in a period of financial depression as serious as that through which we are now passing.

Speaking at an entertainment given by the Maritime and Colonial League, M. Georges Leygues concluded his speech with the following words: "Modern naval equipment, picked crews and staffs—the country will have them very shortly. It will have the navy of its policy." Let us accept the augury from the mouth of him in whom it is only just to see the chief artisan of this "naval regeneration."

OFFICE OF NAVAL INTELLIGENCE
NAVY DEPARTMENT
Washington, D. C.

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VOLUME X—NUMBER 4

OCTOBER, 1927

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In general: Bureaus of the Navy Department; all force commanders; all commanding officers of capital ships, the larger patrols, destroyers, and submarines.

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The material for the BULLETIN is largely derived from service sources and its interest and value are correspondingly dependent upon the number and character of the reports received by the Office of Naval Intelligence from our own officers. In this connection the observations of officers afloat are of great value, particularly if the reports rendered are drawn up in accordance with existing intelligence instructions.

While political and economic information is undoubtedly of much use, the collection of military information should come first in the intelligence work of cruising ships.

NOTICE

The contents of this number of the BULLETIN are based upon information received in the Office of Naval Intelligence between September 1 and September 25, inclusive.

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CONFIDENTIAL

O. N. I. MONTHLY INFORMATION BULLETIN

VOL. X OCTOBER, 1927 No. 4

FRANCE

A. NAVAL

1. South American cruise of French units.

The French cruiser *Lamotte Picquet* and the flotilla leader *Jaguar* arrived in Buenos Aires from Montevideo on August 10. The *Jaguar* left Buenos Aires on the morning of the 16th of August and proceeded to Rosario, where she remained until August 18. The *Lamotte Picquet* left Buenos Aires for Montevideo on August 18 and was joined in Montevideo by the *Jaguar*. The stay of the French ships in Montevideo was one week, in order to participate in the celebration of the Uruguayan independence.

During the stay of the ships in Buenos Aires the officers and crew were elaborately entertained by the Argentines and the members of the French colony.

Upon the departure of the French ships from Montevideo they proceeded to Pernambuco, fueling there, and then on to Madeira, where they again fueled prior to their departure for Brest.

NOTE.—This cruise is simply one of several foreign ones undertaken by French naval units during the past year. The purpose is to foster recruiting, improve morale, and, above all, to show the French flag and increase the political and trade prestige of France. This policy of the French Government, combined with the rejuvenation of the fleet, is very significant. See the special article in last Bulletin entitled "French Naval Regeneration."

GREAT BRITAIN

A. NAVAL

1. Recent submarines.

There are included in this issue, photographs of the Australian submarine *Orley* taken during the recent trials of this vessel. It is understood that this submarine is an improved *Oberon* in design, differing in having a bow cut back as shown in photograph and in having greater engine power than the *Oberon*. The cut bow carries a mechanical net cutting device, which is understood to be in accordance with a German patent. The serrated knife-edge jaw is located at the after end of the inclined fore-and-aft guide angle. The gun shown is 4-inch and it is understood the vessels have six bow tubes

It is also understood that the six British submarines of the *Oberon* class and 1926–27 program now under construction will differ somewhat in design from the earlier vessels of the class, principally due to Admiralty demands for higher speed. Their surface displacement will be 200 tons greater, the engines will be eight-cylindered Diesel, 2,200 horsepower per shaft, total 4,400, and length of the submarine will be increased 15 feet. The submarine depot ship *Medway* is also understood to have five Diesel engines for auxiliaries which are interchangeable with the submarine engines.

The two submarines being completed by Armstrong Whitworth & Co., Newcastle upon Tyne, for the Yugoslav Government will be finished in September. The vessels are understood to be similar in all respects to the *L–52* and class of the British Navy having six bow tubes and two 4-inch guns. These vessels will have a radius of action of 4,500 miles at 10 knots and 5,600 miles with two emergency side tanks filled.

NOTE.—The "Oxley" and "Otway," sister boats, were recently completed in England for Australia. They are of 1,700/1,800 tons. The "Oberon" was recently completed and represents the best of postwar submarine development. The British are building 9 of the "Oberon" and "Oxley" class and have 18 projected. Attention is invited to the mounting of the wet gun, which is similar to that on the L class of boats.—ED.

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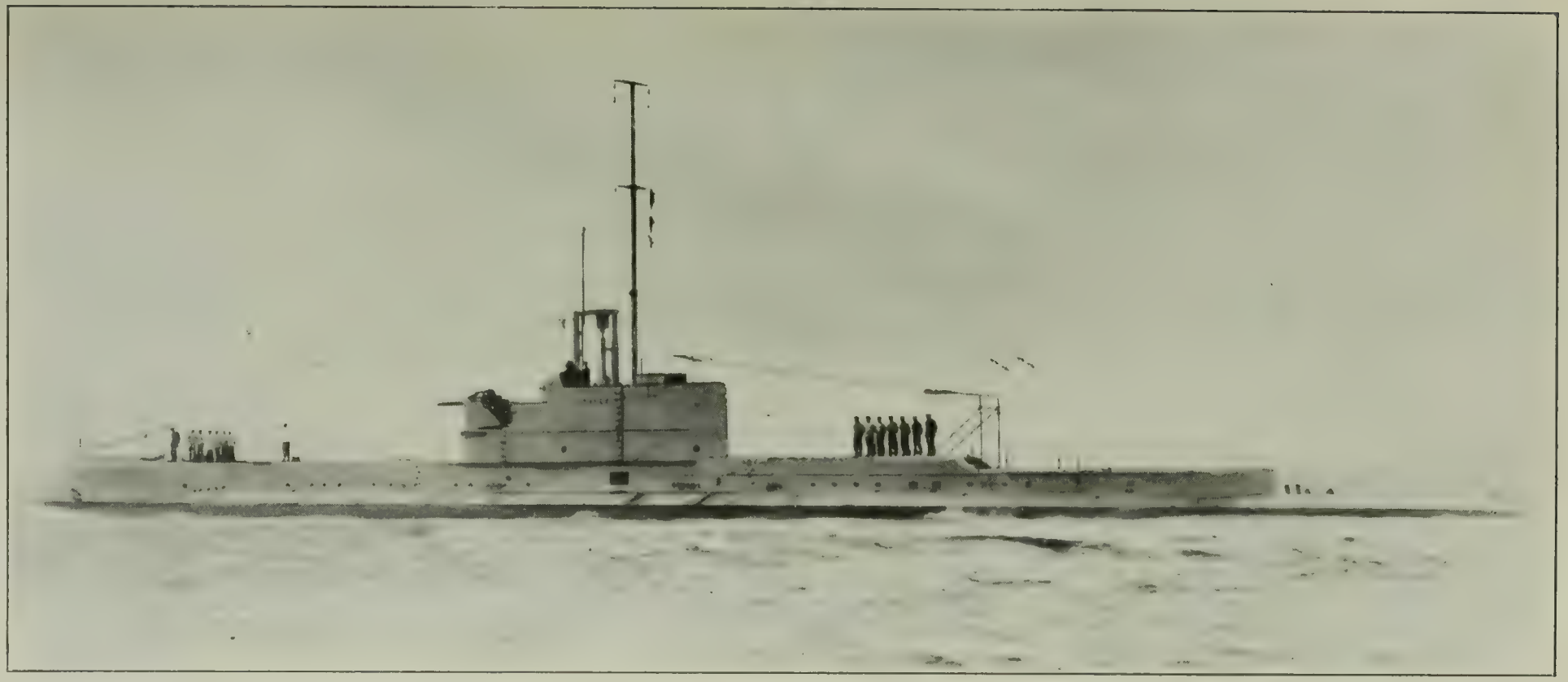
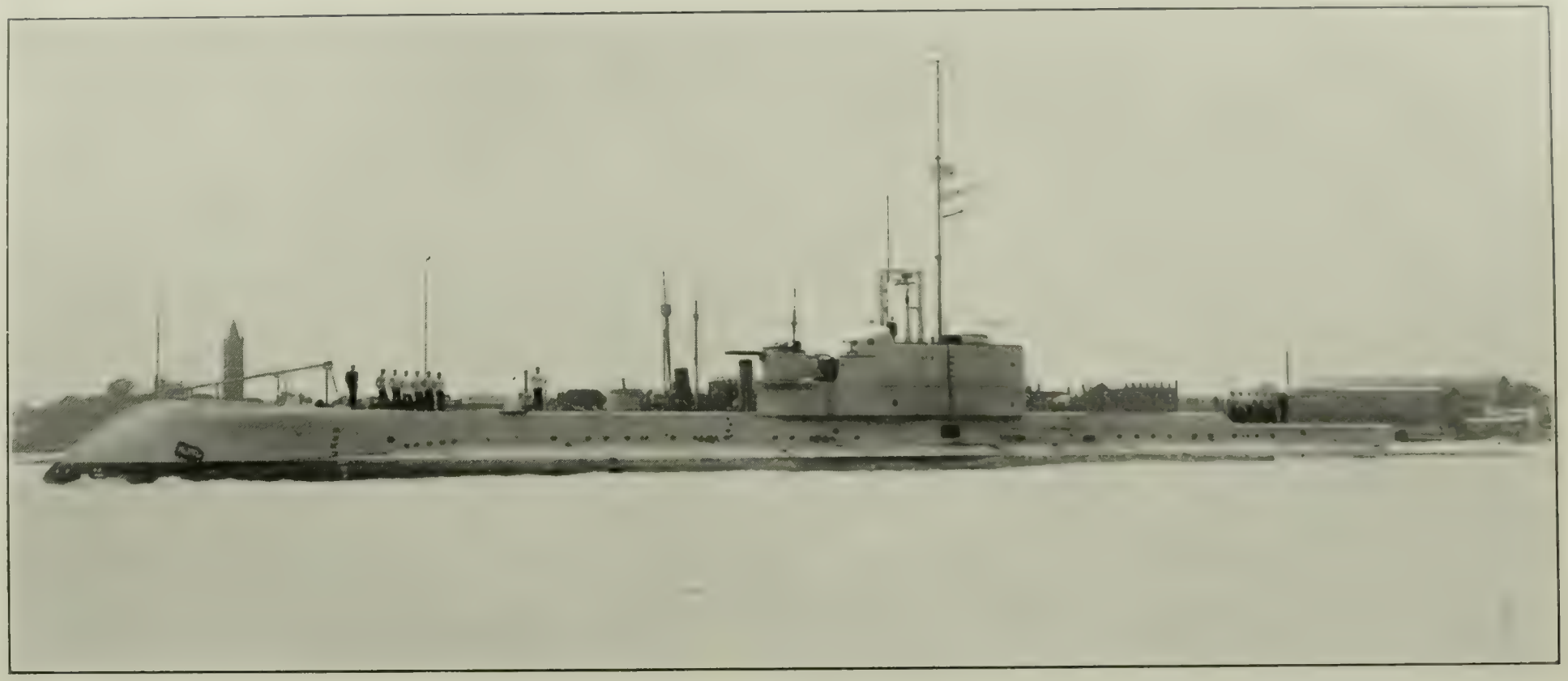
2. *H. M. S. "Suffolk" and H. M. S. "Berwick."*

It will be noted from the inclosed photographs of the *Berwick* that these vessels have a continuous main deck, straight inclined stem, and torpedo stern. The vessels have what is called a "whaler" bow, consisting of a knuckle from the stem to a section about 50 feet aft, and vessels have large bulges fitted externally. The contract horsepower of the *Kent* class is 80,000, but it is expected that the vessels will have a reserve of power and will develop 33 to 34 knots maximum speed over the mile. The vessels have two quadruple torpedo tubes located under the gallery aft of the after stack. The forward stack takes care of the two forward boilers, the middle stack the two after boilers of the forward boiler room and the two forward boilers of the after boiler room, and the third stack the two after boilers of the after boiler room. It is understood there are four boilers in each of two compartments. The masts are of Oregon pine, the lower mast being said to be 18 inches at the base. A height of 150 feet was desired for the radio antennæ, but that this height was not obtained; by estimate the height does not exceed 120 feet. The stays and shrouds are well insulated, as will be noted from the photographs. The armor protection is understood to be a 4-inch protective deck. The vessels are understood to have a partial wood deck of teak, not exceeding 2½ inches in thickness. All vessels of the *Kent* class



H. M. A. S. OXLEY



H. M. A. S. OXLEY

H. M. S. BERWICK

H. M. S. BERWICK

are to be fitted with catapults, although apparently no work on board has as yet been undertaken. It is possible that the work will be done at the dockyards after final trials. No petrol stowage has been provided, and it is understood that barrel stowage on deck will be used for these vessels.

The officers' quarters in these vessels are aft; all vessels understood to be fitted as flagships. The flag quarters aft have oblong windows, as will be noted in the photographs, estimated 3 feet by 2 feet major axis vertical. Air ports in general are said to be 14 inches in diameter; smaller ports of 10 inches.

NOTE.—Great Britain now is building thirteen 10,000-ton cruisers and has projected nine others. It should be noted that this displacement is the "standard one." With fuel oil and water they displace over 13,500 tons. They are armed with eight 8-inch guns and eight 21-inch torpedo tubes and a good part of their armor is 4-inch. Attention is invited to the absence of a fire-control top, to the high angle of fire of their guns, to the 8-inch turret range finders and sighting hoods, and to their lack of airplanes.—ED.

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3. Auxiliaries under construction.

The submarine depot ship, building at Vickers, Limited, Barrow in Furness, will be a 16,000-ton vessel with speed of 16 knots. The vessel has not yet been laid down, but it is understood the design contemplates accommodation in hammocks and individual lockers for each man of the crews of 18 submarines and berthing arrangements alongside for 24 submarines (gangways and securing arrangements). Individual staterooms are said to be provided for all the officers of the 18 submarines. The main machinery will consist of two sets of M. A. N. double-acting, two-stroke oil engines. A further detail is that there will be five Diesel engines on board driving auxiliaries, which will be identical in design as the engines for the submarines, an important standardization so far as spare parts, etc.

The repair ship *Resource*, building at Vickers, Limited, Barrow in Furness, will be 14,000 tons, speed 16 knots, and have main machinery installation of Parsons turbines.

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4. Efficiency, morale, and training of naval personnel.

GENERAL EFFICIENCY

Efficiency of personnel is maintained at a high standard. The system of promotion from the enlisted force to the rank of mate and later to commissioned rank for the best fitted is meeting with success and favor, and is an indication of the fine quality of the personnel that is being developed. In the commissioned grades promotion is

stimulated by recent changes in the rules for retirement of lieutenant commanders and flag officers, efficiency thus being increased also.

MORALE

The morale of the British Navy is very high in general. Attempts on the part of socialists to corrupt the enlisted force have apparently met with no success whatever. The fine traditions of the service are kept constantly before both officers and men, great attention being given to stimulating pride in them. Athletics and education are highly developed and their incidental value to morale is fully recognized. Greater attention is being given to the comfort, food, and general welfare of the personnel, which also improves morale.

The fact that naval officers are still denied the marriage allowance that officers of the army and air force enjoy is a source of discontent to many, and recent decisions adverse to the status and interests of engineer officers must have lowered morale in some cases, besides being probably responsible partially for the slight difficulty in obtaining volunteers for engineering duty from the cadets. The drastic elimination that is now practiced, particularly in the grades of lieutenant commander and commander, has a part in making the navy seem a less desirable career than in the past, and parents are inclined sometimes to hesitate about putting their sons in the navy.

Though perhaps as much attention has not been given to the interests of officers as to those of enlisted men recently, nevertheless the morale of the service as a whole is of the traditional high standard. No difficulty is experienced in obtaining the necessary number of recruits.

TRAINING AND INSTRUCTION

No material change has been made during the past year in the very thorough and elaborate system of training and instruction of personnel that is so striking a feature of the administrative policy of the British Navy. New recruits are kept under training far longer and officers and men in general service undergo more frequently special courses of advanced nature than in our Navy. In the case of gunnery specialists and ratings this is particularly emphasized.

Differences of opinion exist as to the relative merits of the two existing systems of entry as cadets—the Dartmouth one and the special-entry system for older boys from the civilian schools. Though the methods of education of these two classes are quite different, it is argued that they merge into an equally satisfactory type of young officer after a short period of fleet service.

There has been criticism that tactical and strategic training has suffered, due to the limited number of vessels in commission, the utilization of four battleships for the training of boys, the fact that a number of relatively small fleets are now maintained, and the small funds available for purchase of fuel. The Atlantic and Mediterranean Fleets held combined exercises last winter on a moderate scale, and the amount voted for fuel and lubricating oil for 1927–28 was £280,000 in excess of the amount for the previous year. Though more frequent and elaborate exercises are needed, as well as more sea experience under way, the training of the navy is designed to give the maximum return for the funds and opportunities that are available.

With the considerable excess of officers on the active list over the peace-time needs of the fleet that is so reduced for reasons of economy, officers, particularly in the higher grades, serve at sea much less than in years past. Effort to compensate for this is made by assigning them more frequently to staff and technical courses ashore.

The opening of the new Imperial Defense College is the latest and most advanced addition to the educational system, and it is expected that the previous efforts toward uniform doctrine and training throughout the Empire will thus be materially assisted.

NOTE.—The Imperial Defense College might be defined as an "Imperial war college," to be devoted to the study of war in all its phases as it relates to the entire Empire.—ED.

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5. Political and naval policy of the British Empire.

(*a*) OUTSTANDING BASIC FOREIGN POLICIES OF THE BRITISH EMPIRE WHICH

(1) Require British naval support.

(2) Are actually tending to shape British naval policy.

It is not too much to say that all foreign policies of the British Empire require naval support in greater or less degree. As regards other powers, these policies would seem to aim in general at the maintenance of the political and territorial status quo in the world, for the present at least, and at the strengthening of British influence among minor powers and in British mandates, particularly where oil has been located. British policy in favor of the continuation of the international status of Tangier is evolved largely from strategic considerations of the navy.

The record of the 100 years preceding the World War was one of industrial expansion in Great Britain and of the exploitation of oversea markets. With a vast merchant marine before the war and cheap coal as fuel, Great Britain had been able to assume a leading posi-

tion in the world in trading with these markets. Due partly to the loss of economic supremacy that Great Britain sustained incident to the war and partly to the keener subsequent competition of other powers, a vital feature of British policy now, though of imperial rather than foreign character, is the development of inter-Empire trade and the building up and strengthening of the national life of each part of the Empire, its loyalty to the Crown and its participation in all imperial projects. A redistribution of population to relieve congestion at home while supplying much-needed settlers in undeveloped areas is an important feature of this imperial policy.

All these policies of a great trading nation naturally render most important the maintenance and security of trade routes, and thus are actually tending to shape British naval policy, particularly where, as in the route to India, etc. via the Suez Canal, trade must flow through narrow waters bordered by foreign States. This security of other routes as alternatives is also being given consideration. The historic watchwords, "Ships, colonies, and commerce," reflect the intimate relationship of sea power to the well-being of the Empire. The fact that a large and thriving merchant marine is a vital factor in sea power is recognized in British policy no less clearly than that an adequate navy is necessary to protect it.

The frequently asserted dependence of Great Britain for its food supply on open trade routes is considered in connection with all matters of policy, and the extent to which the welfare of the dominions likewise depends on freedom of access in trade to the mother country is being emphasized. For all these reasons the navy is essential and has been referred to as "that great bond of empire."

The determination of the British Government to safeguard the life, property, and interests of its citizens, whenever threatened in any part of the world, is a recognized feature of foreign policy, and considerable demands have been made recently upon the navy in support thereof.

Finally, economy in all its internal and external affairs is earnestly sought by the British Government at present, though vital interests are not allowed to be sacrificed in the process.

There has been no change of government in the past year, and policies in general remain much the same, particularly as affecting the navy.

NOTE. It might be mentioned here that there is one important phase of British foreign policy which has changed in the past year, namely, that relating to Russia. It is yet too early to predict what will be the ultimate effect of the British-Soviet break, but most assuredly, it will accentuate the age-old "Eastern problem," from Constantinople to Hong Kong.—ED.

(*b*) BRITISH NAVAL POLICY EVOLVED TO SUPPORT THE ABOVE

As regards, firstly, the British naval policy affecting the size and characteristics of the navy, a review of the tendencies since the war is of interest. In 1920 it was tacitly conceded by Great Britain that the overwhelming naval superiority of pre-war days was no longer necessary, this being at a time when the United States Navy was far outbuilding the British, and the German menace had disappeared. In 1922, as a result of the Washington treaty, ultimate equality of permissible strength in battleships and aircraft carriers was established as between Great Britain and the United States. In 1924 and again in 1926 statements were made by influential members of the British Government indicating that at least in cruisers Britain should retain a superiority over any other nation. In March, 1927, in presenting the 1927–28 naval estimates to Parliament, the First Lord of the Admiralty stated that the British and Dominion Governments had agreed to make it an axiom of British naval policy that all routes over which British trade and armed forces have to pass shall be adequately guarded, and that the several governments held it equally axiomatic that the British Navy should be kept at equality with the navy of any other power.

At the outset of the recent three-power conference at Geneva on limitation of naval armaments the proposals of the British delegation were based on British needs and on economy, and did not profess to establish total naval strengths of the three powers in the unrestricted classes of vessels. Ultimately, the theory of "parity" with the United States in whatever strengths might be decided seems to have been accepted, but the British delegation adhered in general to the special types and armaments of ships and the total number or tonnage that were put forward as meeting their own special needs.

The conference adjourned on August 4, 1927, having failed to agree on the question of cruiser strength and types. Two days later the chancellor of the exchequer, the Right Honorable Winston Churchill, is quoted to have stated in a speech as follows:

> We are in favor, as a broad, guiding principle, of naval equality between the two great English-speaking nations, but the Americans hold that equality, or, as they call it, parity, must be measured by equal tonnage and should be expressed in exact mathematical parity. We hold, on the contrary, that the principle of naval equality must be based, not on mere numbers or tonnage, but must take into consideration the quite different conditions of the two unities. We feel that our island empire is dependent for its inherent and integral existence, and, indeed, for its daily bread, upon our power to keep open the paths across the oceans. If those paths could be closed at the will of another nation, the united life of the British Empire, and even the independence of its various parts, would no longer rest in our own keeping.
>
> We contend that our position is entirely different from that of a vast self-contained community dwelling in a continent and free from all our European preoccupation. Therefore, we are not able now—and I hope at no future time—

to embody in a solemn international agreement any words which would bind us to the principle of mathematical parity in naval strength. The doctrine of naval equality, if it is to be accepted by us, must take into consideration the whole position of the two countries on the sea, and their respective risks and vulnerability.

Here again is noted the recurring view that equality or "parity" of naval strength as between Great Britain and any other power must be conditioned upon and determined by relative needs, and, in consequence of the asserted greater naval requirements of Great Britain than of any other country, that real parity is not advisable, and virtual British preponderance in naval strength should still be maintained. Equal security, rather than parity of strength, might be taken as the British theory in accordance with such views.

The Admiralty is striving for economy, as are all other government departments, and the cost involved in new construction and in the operation of forces afloat is a matter of great concern. Means of reducing this expense by any international agreement meeting the requirements for adequate British security on British terms would be very acceptable, but security is of paramount importance and it would not be allowed to become jeopardized.

All considered, it is believed that British naval policy with regard to the size of the navy can be summarized as a determination to provide and maintain a force adequate to insure the security of the Empire and its trade routes according to British conceptions of her needs. Though a one-power standard in auxiliary vessels for service in connection with capital ships is generally considered acceptable, the feeling that a greater number of cruisers for duty elsewhere in trade protection is very strong. Therefore parity in that class as a whole would be resisted by many unless conditioned upon certain types and characteristics of vessels particularly adjusted to British needs, thus insuring British superiority, though differently described. Realizing the value of the chain of her naval bases and fueling stations around the world and of her large merchant marine, Great Britain rightly can feel that she is still supreme in sea power, and it is believed that that traditional supremacy will not be yielded without considerable struggle.

Considering next British naval policy in its relation to strategical and political dispositions, there has been no marked change apparent during the past year. Conditions in countries bordering on the Mediterranean and the importance of the route via Suez make that area distinctly the focus of European naval interest. The British Mediterranean Fleet is still, therefore, the most powerful force of the Royal Navy, though a number of units from it were dispatched temporarily to the China Station, in view of the disturbed conditions there. The vital importance of the English Channel as the home focus of all trade routes is always recognized, however.

It has been announced that the five new cruisers of the *Kent* class are to be assigned upon commissioning to the China Station in place of the five modern but smaller cruisers now there, and an aircraft carrier, originally temporarily attached to that station, is now indicated as regularly assigned. Obsolete river gunboats there are also being replaced by new vessels. The continued and great interest of Great Britain in that part of the world is thus shown.

A naval mission to Greece has recently been reappointed and the naval advisors in Chile are being continued. Diligent effort is made to obtain for British firms the contracts for building men-of-war for foreign countries, and in other ways the broadening of British naval influence among minor powers is encouraged and furthered.

There have been several recent instances of the use of the British Navy as an aid to diplomacy, and the policy is well established of diverting naval vessels to extraneous duties in support of the normal and necessary activities and industries of the nation when interrupted or threatened by any cause.

NOTE.—Attention is again invited to the three major changes in world affairs since the war which have vitally affected British foreign and naval policy, namely, the absence of a danger close at home (which resulted in the return of the fleet to the Mediterranean); the potent increase in the importance of the Pacific (which has resulted in Singapore); and the rise of the naval strengths of the United States and Japan (resulting in the continual effort to limit armament).—ED.

(*c*) COOPERATION WITH THE DOMINIONS AND INDIA

Cooperation, in a naval sense, between the various units of the Empire has been the preoccupation of numerous British statesmen and naval officers ever since the war, when the need for it was so apparent. Admiral of the Fleet Earl Jellicoe, almost immediately afterwards, started in February, 1919, on a tour of India and all the dominions (except South Africa) for the express purpose of advising their governments in this matter and of arousing interest in dominion support of and contribution to the naval forces of the Empire. His conclusions are well expressed in a chapter of Brassey's Annual for 1926, entitled "Naval policy of the Empire—The need for cooperation."

This need for cooperation was the keynote of the naval discussions at the Imperial Conference held in London in the autumn of 1926. The statesmen of Great Britain, India, and all the dominions were unanimous in accepting the principles involved, even where financial reasons prevented definite promises of practical assistance. It seemed that greater recognition was created, at least in principle, of the responsibilities of the other portions of the Empire in assisting Great Britain more generously than in the past in the support of a navy adequate for all Empire needs.

The principle of dominion navies has been established, and the necessity of a doctrine among them similar to that of the British Navy is accepted. Along these lines India has taken an initial step toward the establishment of a Royal Indian Navy as a combatant force. The regular system for the periodic interchange of British and Australian cruisers, though not actually in operation at present, is intended to be resumed, the plan now contemplating such an interchange for a period of one year every three years. When practicable, personnel from dominion navies are given training aboard ship or at courses ashore in England, and officers of the British Navy are assigned in limited numbers to assist the dominion services, particularly New Zealand at present.

In a financial sense cooperation is progressing slightly also, New Zealand showing increased interest in naval affairs more than the others. The naval board there now controls two cruisers, two sloops, a depot ship, and a trawler, the last named having recently arrived there. These vessels are loaned from the British Navy, but their cost of maintenance is borne by New Zealand. According to their Prime Minister's announcement, it is now proposed to provide maintenance for two "B" class cruisers (8,000 tons) instead of the two small cruisers, the *Dunedin* and *Diomede*, now loaned them, and to improve the base and repair facilities sufficiently to care for the larger modern ships. This extra cost, together with a proposed grant of £1,000,000, spread over a period of several years, toward the cost of the Singapore base, means a substantial increase in New Zealand's contribution to imperial naval defense.

Australia's building program for her navy is continuing as planned and apparently is all that can be undertaken in addition to the financial demands in supporting the considerable naval establishment already under Australian control. The Malay States are continuing their annual quota of the total contribution of £2,000,000 toward the Singapore base announced last year, but thus far no plan on the part of Canada or South Africa toward increasing their naval contribution has been noted.

The creation of the new Imperial Defense College is another step toward increased cooperation with the dominions, major military matters of common interest and importance to the entire Empire being the subjects considered by this most advanced of all the British military institutions of learning.

NOTE.—England is beginning to feel very strongly about the question of financial cooperation of the dominions in defense expenditures. The dominions are apparently trying to dodge the question. For the year 1924–25 the expenditures on naval defense were equivalent to the following:

United Kingdom, £1 4s. 10d. Australia, 8s. New Zealand, 8s. South Africa, 1s. 9d. Canada, 8d.—ED.

GERMANY

A. NAVAL

1. The new torpedo boat "Moewe."

The torpedo boat *Moewe*, the first of the new boats constructed since the war, is now ready for service again. The machinery and boiler plant of the ship which was damaged by an explosion during the trial trips last November has now been thoroughly overhauled and retested. This work took longer than was originally anticipated. The *Moewe* has now left the dockyard at Wilhelmshaven for the Baltic Sea for trial runs. It is hoped to attain a maximum speed of 33 knots.

NOTE.—The "Moewe" was completed January, 1926. There were six boats in this class, all of which are now either completed or nearing completion. They are of 800 tons, mount three 4.1-inch guns and four 19.7-inch torpedo tubes, and have a speed of 33 knots. They are as large as the treaty of Versailles will permit.—ED.

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2. The launching of cruiser "C."

[*Source: German press*]

Cruiser "C" was launched at Kiel recently, and according to unofficial reports will be called the *Karlsruhe*. The new *Karlsruhe* represents a further development of the *Emden* and the *Koenigsberg* types, which latter was launched several months ago. The ship is 570.72 feet long, 49.85 feet beam, draft 17.71 feet and has a displacement of 6,000 tons in accordance with the limit prescribed by the terms of the treaty of Versailles. Oil will be used as fuel, and it is hoped to obtain a speed of 32 knots. The armament of the new cruiser consists of nine 5.9 inch guns and four triple torpedo tubes. The guns are mounted similar to the arrangement on the large English battleships, and it is anticipated that when finished the ship will represent the highest combative efficiency which modern technic is able to produce in a vessel of this size.

NOTE.—Three of these cruisers are now building, one, the "Emden," being already in commission. The "Koenigsberg" is due to be complete next spring and the "Karlsruhe" in a year.—ED.

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3. German cruiser "Emden."

HULL

The hull has considerable dead rise and is well rounded at the turn of the bilge. It is equipped with very deep bilge keels of the built-up plate type, and apparently the bilge keels house the sub-

marine signals and listening devices, for they had large circular brass plates, which would indicate something of this sort, at each end. The stem is straight below the water line and the forefoot is practically square with a slight bulge or bulb bow. Aft the stern is cut away, leaving approximately 44 feet from the last bearing block. The hawse pipes are recessed and permit the anchors being stowed flush with the hull.

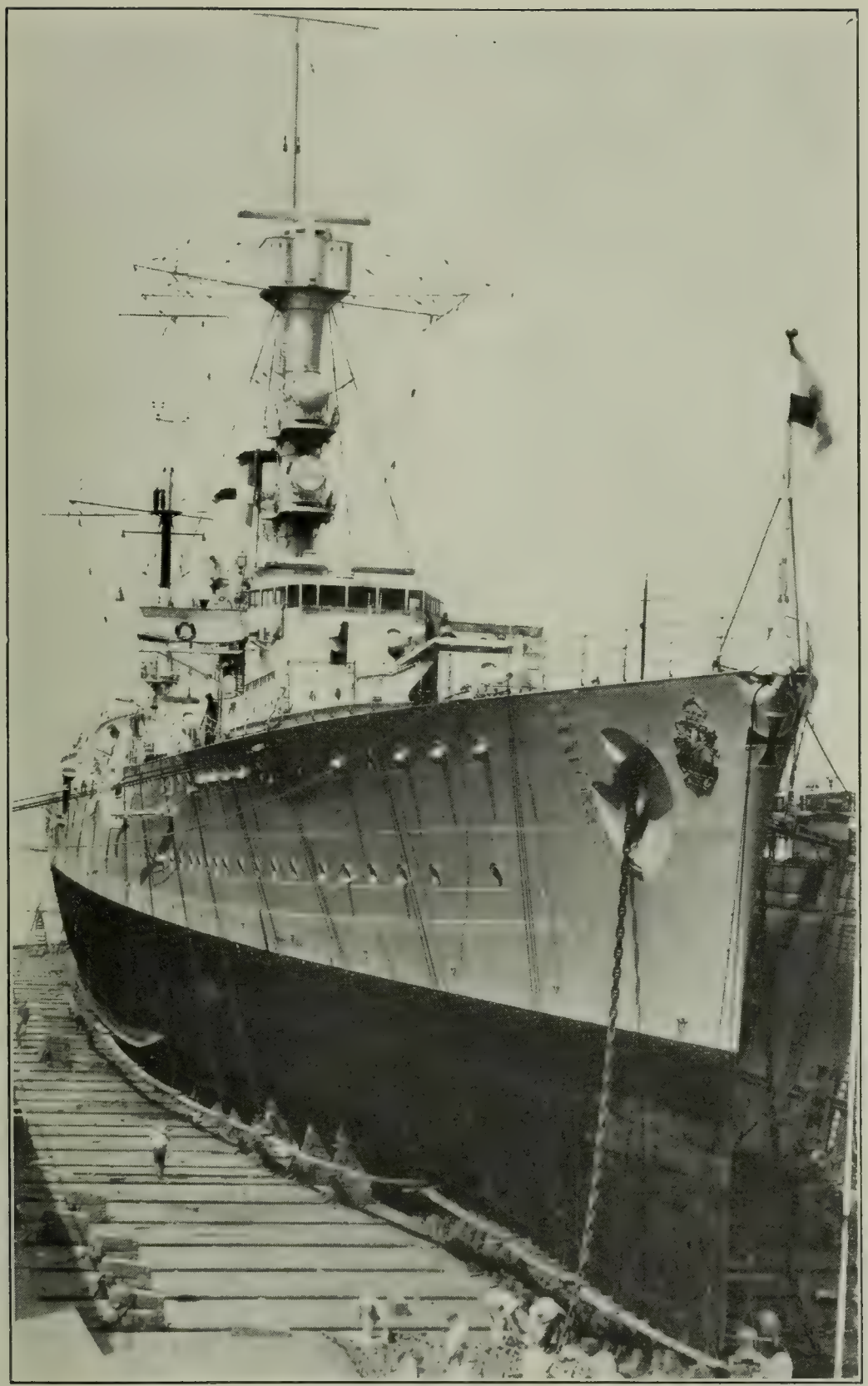
She is twin screw, with built-up type of propellers and semi-balanced type of rudder.

Her twin-screw propelling machinery is rated at 47,000 horsepower giving her a speed of approximately 29 knots.

ENGINES AND BOILERS

The engineer officer of the watch stands watch on the berth deck in a control room centrally located with respect to the engineering spaces. This room contains a large number of instruments showing pressures, temperatures, revolutions per minute, machinery in operation, electrical load, amperes and watts, and other necessary and desirable data. The control room corresponds roughly to the control room of a vessel such as the *Maryland*, with the exception that no actual handling of machinery is done therefrom.

The arrangement of machinery in the after machinery space, while in general similar to the arrangement on a modern destroyer, was much more compact and more neat. The high-pressure and intermediate-pressure turbines operate on one shaft; the low-pressure turbines drive a separate shaft. Kingsbury thrust bearings are fitted on each shaft. The throttle man's station is in the forward end of the engine room facing aft. The instrument panel is unusually complete, containing not only the usual steam pressure and vacuum gauges but also mercurial thermometers of the round dial type giving bearing temperatures of all main bearings as well as auxiliary bearing temperatures in the engine room. An interesting feature of these thermometers is that the leads to them consist of lead tubing about one-eighth inch in diameter. The operation of the main throttle is rather unusual. The wheel operates in sequence for throttle valves which are mounted in parallel on the steam line. The use of four valves obviates the necessity for one large throttle valve and permits finer variations of speed than would be possible if only one valve were used. A mechanical indicating device on the instrument board enables the throttle man to see at a glance how many valves are open and what the percentage of opening is. The instruments used are all much smaller than those used in the United States Navy and appear to be of very high quality. Nevertheless, complaint was voiced by the engineer officer as to the quality of the material used on the instruments as well as to other material in the



GERMAN CRUISER EMDEN

engineering department, he stating that the articles manufactured just at the close of the World War were inferior to those made either at an earlier or later period.

The piping in the machinery spaces was designed to follow the contour of near-by bulkheads, turbines, etc., all sharp angles being avoided; consequently the space is remarkably clear of obstructions. The stream piping is heavily lagged with asbestos covered with heavy canvas. The flanges on the steam lines are rather narrow, so that the piping appears smooth through its entire length.

The direct-current alternators rotate at about 1,500 revolutions per minute. The sets are of 200-kilowatt capacity, driven by Curtis turbines. A unique machine found in each machinery space was a 120-kilowatt motor-driven alternator mounted vertically on a level with the floor plate, built for the purpose of furnishing alternating current for gyros, radio, and all other alternating-current apparatus on the ship. The ship has three of these machines, one in each machinery space and one in the Diesel room.

The after boiler room contains two boilers placed side by side facing aft. Feed and fuel pumps are located in the fireroom, as are all other fireroom auxiliaries. The working platform is clear and unobstructed, but the network of overhead piping crowded together with the fuel-oil and feed heaters is so complicated and so congested that it is difficult to see how overhaul can be accomplished. The boilers themselves are bent tube express type fitted with 12 burners—6 in the bottom row, 4 in the middle row, and 2 in the top row. The boiler front is perfectly flat except that the end of the burner barrel sticks out about 4 inches. The air register and cones are inside, air being allowed to enter through four swinging flabs around each burner. These flabs are of substantial construction with a view to preventing flarebacks. According to the statement of the engineer officer, the rate of combustion of each boiler is considerably higher than that used on boilers of the *Maryland*, for example, burning about 950 gallons of fuel oil per hour per boiler at full speed. It was noted that the steaming watch in each fireroom consists of one water tender per fireroom, and one fireman per boiler, a total of three men for two boilers.

A single reduction gear is used for the two turbine shafts in each engine room. The high-pressure and low-pressure turbines operate on opposite sides of the same gear. Gears are inclosed and fitted with forced lubrication. Gears are located in two separate parallel gear rooms forward of the after engine room and abaft of the forward engine room. Motor-driven oil pumps are used for furnishing the oil circulation.

One M. A. N. six-cylinder four-cycle vertical upright 275-horsepower Diesel engine drives a 175-kilowatt direct-current inter-

pole compensated 120-kilowatt generator. The over-all dimensions of the Diesel are about 7 feet long, 4 feet high, and 3 feet wide. A rough estimate of the weight of the engine without the generator is 4 tons, including the foundation. The generator was apparently about half the weight of the 300-kilowatt General Electric M. P. C. generators. This generator carries the entire electric load of the ship in port. The Diesel is operated for approximately 200 days out of the year, and is under routine overhaul the remainder of the time. Routine overhaul takes place ordinarily after about 40 days' operation. The engineer officer stated, however, that new engines designed for the cruisers now building would furnish about twice the horsepower for the same size and weight, and require an overhaul only once every six months. It is interesting to compare this installation with the installation now in use experimentally on the *Maryland*. The *Maryland* engines weigh about 15 tons and furnish 350 kilowatts each. They require overhaul after 10 days' continuous operation, and are extremely bulky and cumbersome by comparison. The *Maryland's* and *Emden's* Diesels are approximately of the same date of design. The *Emden's* Diesels were built in two-cylinder units, each cylinder being fitted with a liner easily renewable by the ship's force at small cost.

Throughout the engineering department the electric cables are uniformly of small diameter as compared with similar cables used in the United States Navy. The cables are nested in compact form, there frequently being a dozen cables in a space 4 inches square. Cables are laid flat against the bulkheads and held in place by clamps around the nests. Power and distribution switches are of the inclosed brush type and are operated by handwheel from the front of the distribution boards. Electrical appliances in general are of compact design, of small dimensions as compared with United States practice. Communication throughout the engineering department is by telephone, there being only one or two voice tubes in the whole engineering department. The engineer officer stated that all voice tubing is vertical. The telephones used for communication between the control room and machinery spaces are of the wall-bracket type, the mouthpiece being fitted flat against the bulkhead and the ear phones swinging out to horizontal position when in use. An additional telephone system of the intercommunicating office type is installed throughout the ship, the automatic dial system being used exclusively.

The discipline appears to be harsh and of the same general type as under the imperial régime. This may be due to the fact that all senior officers are of the old imperial navy, and without exception veterans of the submarine campaigns, High Seas Fleet, and Admiral Von Spee's cruiser squadron. The discipline in effect was demon-

strated when the engineer officer, wishing to go through a door partly blocked by a man engaged in work, kicked the door open and the man into a waste bin without any previous order or command. Men sleeping about the decks were likewise kicked out of the way.

About 100 cadets were on board for training, and of this number 20 are engaged in engineering training. The cadets appear to enjoy no privileges other than those of the crew, and perform the same work and berth and mess as does the crew. It was said that the age limits for entrance of cadets was from 18 to 20 years; that they were selected from the equivalent of high-school graduates by using some form of psychiatric test.

NOTE.—Attention is invited to the frontispiece photograph of the "Emden." Note the distribution of her forward guns and her peculiar foremast and fire-control top.—ED.

B. AERONAUTICAL

1. New fuel gas for airships.

The physicist of the Zeppelin Works, Doctor Lempertz, has been experimenting and testing various mixtures and admixtures of gases during the past four years to perfect a satisfactory motor fuel. The experiments have not been entirely terminated, but the results so far attained are highly satisfactory.

The composition of the new fuel gas, so far as it is now perfected, is as follows: The main body of the gas is Althylen, which in itself would constitute a perfectly satisfactory motor gas. However, Althylen is a little lighter than air, which for reasons of practical navigation and operation is not desirable. To overcome this feature, an admixture of a small proportion of another fuel gas of heavier weight, probably Butan or one of its numerous derivatives, is being considered. Experiments with these admixtures are still in progress; but from the results obtained so far it is reported that almost any one of them will be satisfactory. Unless the tests that are still in progress should lead to more favorable developments, a mixture of about 90 per cent Althylen (specific weight, 0.965) and about 10 per cent Butan or one of its derivates of an approximate specific weight of 2.00, will be used in the new airship. The new gas, it is stated, will give a greater efficiency than pure Althylen and will also have the desired weight, i. e., about equal to atmospheric air or slightly heavier.

The outstanding advantage of the new fuel gas is that it will do away with the use of benzine, which is not only a source of danger but also a disadvantage to navigation because through consumption of benzine the vessel becomes lighter and therefore requires the discharging of hydrogen of a weight equal to the benzine used. The new gas being about of the same weight as air, the weight balance of

the ship will not be disturbed through the consumption of gas, as the plain air will automatically readjust weight. However, no mention is made of how fuel gas is to be taken on at stations other than the base.

It is believed that an application for a patent on the new gas fuel has already been made in the United States.

NOTE.—The Germans are apparently spending much time and money upon the investigation of the problems of lighter-than-air craft in order to again build these ships exclusively when the restrictions of the Versailles treaty are removed. With the permission of the Allies, the Germans are at present building two large Zeppelins for the Spain-Argentina service, which is scheduled to open next summer. ED.

ITALY

A. AERONAUTICAL

1. Planes offered to Government by Provinces.

The Aero Club of Italy, with Mussolini's consent, has announced that subscriptions have been opened (the closing date is November 4) in each Province for the purchase of airplanes which are to be offered as gifts to the Government aeronautical department. The Province of Turin has already proclaimed that its quota is 10 airplanes.

The idea was started by the Province of Vercelli, which recently offered a plane to the Government. Subsequent to this, Prince di Scalea, president of the Aero Club of Italy, proposed that subscriptions should be promoted in each Province. In his letter to the Prince, Mussolini makes it a condition that such subscriptions should be very low and absolutely spontaneous, "for," says Mussolini, "certain Provinces are in such financial condition that it would be hard for them to offer even the wing of a plane. Whatever contribution is given will be appreciated, inasmuch as it will be proof of each citizen's interest in the aviation of his country. This will be more important than the number of planes that the Province's subscription may purchase."

This action is in line with the propaganda directed toward increasing the national air-mindedness.

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2. Aero club activities.

[*Source: M. I. D.*]

The Air Ministry is making a considerable effort in connection with commercial propaganda. Aeronautical engineering courses have been organized at various universities, meetings are held from

time to time in various cities, civil aviation is being encouraged and advertised, grammar-school students are invited to enter flying-model competitions, aero clubs are being organized, etc.

In an effort to encourage sporting aviation with the ultimate purpose of additional pilots who, in an emergency, could be absorbed by the military organization, the Aero Club of Milan has turned out the following plan: Starting from the principle that an aero club must be an active center of aeronautical propaganda, which must be able to offer to its members the possibility of flying, the president of the club asked the Italian Undersecretary of State for Aviation for a number of school planes with which the members of the club could do their practical flying training. The Air Ministry approved the project and gave the aero club five machines. Within the month of September courses were started, with the following objects in view:

(*a*) Train, with very little expenditure, members of the Aero Club of Milan in flying until they secure the brevet of "touring airplane pilots."

(*b*) Have a number of machines available for such training.

(*c*) Have machines available also for members who already possess their brevets and who desire to fly from time to time.

(*d*) Facilitate all steps in connection with getting licenses, documents, fuel, and maintenance, etc.

The Air Ministry has granted to the Aero Club of Milan two large hangars at Talied and five planes, school type. Additional planes, sporting type, will be purchased by the club during the year. The Air Ministry has furthermore loaned to the club a number of pilot instructors and a small number of mechanics.

Anybody, provided he is of good character, may become a member of the aero club. Up to the present a pilot's brevet, even for touring planes, was almost prohibitive in price, amounting to something like 30,000 lire. The aero club intends eliminating this drawback and making it possible for anyone to secure a brevet. Members who intend to become pilots will pay 1,500 lire admission fee. For students of Government schools this fee will be reduced to 500 lire.

In addition to said admission fee, prospective pilots will pay 100 lire for each hour of instruction. Presuming that the brevet can be secured after 13 hours on an average, total expenditure for admission fee and training would be not over 3,000 lire. However, on securing his final brevet, the student is entitled to a premium of 1,000 lire, so that his net expenditure will only be 2,000 lire.

A parachute is compulsory. Each student pilot will be equipped with one, loaned by the Air Ministry. Acrobatics are forbidden.

The student pilot will have to follow a few lectures giving him instruction on airplane design and construction, motors, aerology, etc.

This initiative of the Aero Club of Milan will give young men desiring to fly a possibility of doing so without being compelled to join military aviation. As demonstrated by the fact that the Air Ministry has granted hangar space, machines, parachutes, instructors, etc., the plan has met with the full approval on the part of the Undersecretary of State for the Air.

The other eight aero clubs at present existing in Italy, all of which are federated with the Aero Club of Italy, the central organization, now desire to follow Milan's example. The Air Ministry is being approached to this end.

B. MISCELLANEOUS

1. Armstrong plant at Pozzuoli closes.

The well-known Armstrong foundry at Pozzuoli (a suburb of Naples) was definitely closed down by the recent act of the mayor of Pozzuoli, who revoked from the Armstrong & Mitchell Co. the concession for the grounds occupied by the factory.

The Armstrong Co. was established in 1885, and for many years it was one of the most important centers of military and naval construction in Italy. Both the 12-inch guns and also the smaller types which are more commonly used on Italian ships were built here. After the war, however, the financial situation of the company and the lack of work caused the administration to sell out and close the business.

JAPAN

A. NAVAL

1. Completion of vessels.

Submarine *Ro-66*, which was under construction at the Mitsubishi Dockyards, Kobe, was completed on July 25, 1927.

The cruiser *Kinukasa* completed her builders' trials recently.

NOTE.—The "Ro-66" is of 1,950 tons and with a surface speed of 17.5 knots. There are nine boats in this class. The "Kinukasa" is of 7,100 tons standard displacement and a speed of 33 knots. She mounts six 8-inch guns in three turrets—two forward and one aft—and four 21-inch torpedo tubes.—ED.

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2. Collision of Japanese ships.

The following official announcement was made by the Japanese Navy Department, on August 25, 1927:

At 11.20 p. m. August 24, 1927, while the combined fleets were engaged in night maneuvers, including a night torpedo attack, in the Japan Sea, the cruiser *Jintsu* collided with the destroyer *Warabi* at a point about 20 miles northeast of Mihonoseki. The *Warabi* sank in a few minutes. The anchor chain compartments of the *Jintsu* were flooded and that vessel was towed to Maidzuru by the *Konco*.

In the same maneuver the cruiser *Naka* collided with the destroyer *Ashi*, cutting off the latter's stern. The *Ashi* was towed to Maidzuru by the cruiser *Abukuma* and the *Naka* proceeded there under her own power.

A total of 119 officers and men were killed or missing in the two collisions.

According to information received in discussing the accident with a prominent Japanese naval officer, the accident occurred in the following manner:

The fifth division, consisting of the cruisers *Jintsu*, *Naka*, *Furutaka*, and *Kako*, and the twenty-seventh destroyer division, consisting of the *Hishi*, *Sumire*, *Warabi*, and *Ashi*, were on converging courses steaming at 28 knots, no lights. When the leading destroyer *Hishi* sighted the cruisers, she put her rudder hard left and got across the *Jintsu's* bow. The second destroyer, *Warabi*, followed and was struck squarely amidships by the *Jintsu*, sinking immediately.

The third destroyer *Ashi*, hearing the collision, turned right, and the cruiser *Naka* sheered out to left, the latter hitting the *Ashi* and cutting off her stern. All other ships got clear. The destroyer division was on the port hand of the cruisers.

Admiral K. Kato, commander in chief of the combined fleet, in assuming full responsibility for the accident, submitted his resignation to the Emperor. It is understood the resignation will not be accepted.

Press reports state that the damage to *Jintsu*, *Naka*, and *Ashi* was such that they can not be repaired in time to participate in the grand maneuvers in October and that a supplementary budget will be asked to cover the cost of their repairs.

NOTE.—The following are details of the ships involved in the above collision:
"Jintsu," 5,570 tons, seven 5.5-inch guns, 33 knots, completed 1922.
"Naka," 5,765 tons, seven 5.5-inch guns, 33 knots, completed 1924.
"Warabi," 850 tons, three 4.7-inch guns, 31.5 knots, completed 1921.
"Ashi," 850 tons, three 4.7-inch guns, 31.5 knots, completed 1921.
The fifth cruiser division consists of some of the finest light cruisers in the Japanese service.—ED.

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3. Japanese press and the arms conference.

While it is an incontestable fact that the failure of the three powers to reach an agreement has dejected the Japanese people, the predominant note of the comment is one of exasperation. It is quite clear from the tenor of these editorials that the United States and

Britain are believed to have digressed from the spirit in which the conference was called and that Japan alone is credited with having striven toward real limitation. The Nichi Nichi believes that each of the other two powers was possessed by an ambition to gain the strongest navy, and that it was this feeling which brought about the failure of the conference. It adds: "It was preceptible from the proceedings of the conference that the two powers looked on the conference as an opportunity to attain their ambition. The conference was, therefore, destined to end in failure, however zealous Japan might have been for its successful conclusion."

Various reasons are advanced for the failure of the conference. To several papers it was the refusal of France and Italy to participate in the conference which brought about its breakdown; but the majority regard this outcome to have been the inevitable result of the prolonged and persistent discussions of technical questions. (It will be recalled that the consequences were foreseen by the Japanese press shortly after the proceedings of the early meetings of the technical delegates became known.) The Jiji Shimpo, which believes that the "immediate cause was a collision over the 8-inch gun question," points out that, while the principle of parity between the United States and Britain was established in 1921, the intricacy of the functions of cruisers and the physical circumstances which respectively surround the United States and Britain, combine to prevent the application of the principle of parity to cruisers. If, it adds in effect, the American and British delegates had not been absorbed in technical issues of this nature, their efforts would have yielded satisfactory results. The lesson this paper draws from the developments at Geneva is that the work of disarmament can be completed only by the application of broad statesmanship.

Perhaps the most interesting of these editorials is that which appeared in the Osaka Mainichi, which can not persuade itself to believe that either the refusal of France and Italy to participate in the conference or the excessive emphasis laid on the technical issues is sufficient to account for the failure of the powers to come to an agreement. It states that there are two elements within the present British Government—the moderate, progressive group led by Mr. Baldwin and the "die-hards," of which Mr. Winston Churchill is the most prominent member; that the "die-hards," who are now dominant, are convinced that the present situation in Europe presents little difference from the situation which obtained immediately before the war, and that they are determined to maintain a naval establishment sufficiently strong to protect the British Empire against countries that are now only waiting for a favorable opportunity.

The Mainichi places the greater share of the responsibility for the failure at the feet of the British, but at the same time it asserts that some blame must attach to the American delegates for allowing themselves to be infected with suspicion by the British. It may be stated that the foregoing distribution of blame accurately represents the general consensus of opinion in this country. The Japanese are not convinced that Britain was possessed by an honest desire for reduction of naval armament, but at the same time they do not view with sympathy the insistence on parity in cruisers with Britain purely—for so it is regarded by the Japanese—for reasons of national prestige.

There follow interesting extracts from the Japanese press concerning the outcome of the conference.

TOKYO, CHUGAI SHOGYO

The conference was formally opened on June 20, and after that the delegates of the three powers worked assiduously for more than 40 days but without result. We are greatly grieved to see that the laborious efforts at Geneva were of little use. The Geneva conference was opened for the purpose of curtailing military expenditures and thereby promoting the peace of the world. We earnestly hoped that the delegates would surmount all difficulties and make the conference a success, but unfortunately this hope was not realized. We are not, however, so pessimistic as to say that the future of the disarmament movement is utterly hopeless, although the present breakdown will no doubt hinder its progress. The future will surely witness the reopening of disarmament conferences until the goal is reached. But it can not be denied that the present breakdown will prove to be a hindrance to a speedy realization of the ultimate object.

It is a relief that Japan has been unsparing in her efforts and has done all that she could for the attainment of the object. The plan of compromise as proposed by the Japanese delegates demonstrates the good faith of Japan. Though the compromise plan was not so ideal and practical as to call forth our approbation, yet her efforts will be of some service for the cause of disarmament. On the other hand, the obstinate attitude with which the United States and Great Britain rejected the plan is deplorable.

TOKYO, JIJI

The immediate cause was a collision between the American and British delegates over the 8-inch gun question. The fact that the American and British delegates stood against each other over this technical question was doubtless attributable to a desire on either

side to maintain an equal naval strength, and also to a lack of a spirit willing to solve all differences by diplomatic means. The principle of equal naval strength between the United States and Great Britain dates back to the Washington conference of 1921, at which time the ratio of 5-5-3 was defined for capital ships. However, the functions of auxiliary ships are intricate. This intricacy stands in the way of the application of the capital-ship ratio. The United States is a continental and self-sufficient country, but Great Britain is an island kingdom and lives by importing foodstuffs and raw materials in large quantities. The United States can do with a limited quantity of auxiliary ships, but Great Britain requires an adequate number. These differences in national circumstances resulted in the rupture of the conference. The lack of statesmanship in the American and British delegates who were influenced by technical opinions to a great extent was responsible for the breakdown. This fact is particularly worthy of mention.

The rupture of the Geneva conference is grievous, but it is premature to think that the disarmament movement has been completely shattered. We are of the opinion that the Geneva conference was not useless, but that it is a step on the way toward the attainment of the object. Bent under the heavy burden of military expenditure, nations are most anxious to reduce armaments as far as possible, and no disappointment need be felt over the future of the disarmament movement which is eagerly supported by the masses of the world. The unsuccessful Geneva conference affords us the lesson that such a great undertaking has to be accomplished by statesmen of large caliber. In this sense the Geneva conference was not futile, but will contribute much toward the realization of the ultimate object.

TOKYO, NICHI NICHI

The powers which played an important rôle at the Geneva conference were the United States and Great Britain; and it was their dream of the strongest navy which rendered the conference unsuccessful. It was perceptible from the proceedings of the conference that the two powers looked on the conference as an opportunity to attain their ambition. The conference was, therefore, destined to end in failure, however zealous Japan might have been for its successful conclusion.

Nothing can be more mysterious than the fact that both the United States and Great Britain refused to accept Japan's compromise plan. It was not within the power of Japan to determine a principle for the adjustment of the dispute between the two powers over gun calibers, Great Britain preferring 6-inch guns and the United States 8-inch guns. Nor was the Japanese plan aimed at the adjustment of the

dispute. The step taken by Japan to preserve the efforts of the participants at Geneva did not awaken echoes in the United States and Great Britain.

The tragic termination of the Geneva conference will throw a dark shadow over the disarmament movement of the League of Nations. The former may be said to have strangled the latter as well as future disarmament movements. The unsuccessful Geneva conference leaves a grave responsibility on the three participants.

We presume that the rupture of the Geneva conference will not prove an occasion for immediate competition in naval construction. While the two powers do not seem to be disposed to do so at present, we may, however, declare that the possibility of a naval competition has been rendered more considerable than before the rupture of the conference. As for Japan, she should seriously study how events will influence her; whether or not the scale of the minimum national defense pronounced by Japan's delegates at Geneva will not undergo a change in the future is worthy of attention.

The authorities of the Japanese Navy expressly stated that 230,000 tons of cruisers were the minimum necessity, but they afterwards reduced the figures to 180,000 tons. It is curious that the Japanese Navy has two minimum necessities for national defense. We are afraid that the Japanese Navy may have three in the future. The naval authorities announce that Japan will keep herself aloof from naval competition, but this announcement may not be absolute. The Japanese people should be watchful on this point.

OSAKA, MAINICHI SHIMBUN

The reason why Japan and Britain gladly accepted the invitation to participate in the conference, was, as stated by their leading officials, that the real purpose of the conference was to lessen the burden of taxation and to create further guaranties of peace. There can be no other cause for the failure of the conference than the falling into oblivion of the objects of the conference and the excessive discussion of technical questions. The first reason for this outcome is the foreign policy of the British Government.

No difference can be discerned in the sentiments which created the Washington and Geneva conferences. The reason why the latter ended in failure is that the American and British statesmen—particularly the British—have forgotten the lessons of the war and have fallen into the state of mind which prevailed before the war. There is similarly no doubt that the statesmen of France and Italy are in the same state. There can be no hope for a permanent peace so long as these antiquated politicians, ignorant of present conditions, hold the reins of power.

TOKYO, TOKYO ASAHI

At the conference the United States and Great Britain were absorbed in figures and struggled over the establishment of the principle of parity, no reliance being placed on the fidelity of the other. Judging from the present international situation, disarmament is by no means an easy task. With France, which is constantly menaced by the revival of Germany, and the challenge of Italy as a neighbor, it is but natural that Great Britain should be anxious to have an adequate navy, and has every reason to claim the right of constructing small cruisers for the maintenance of her lines of communications. However, neither the United States nor France will prove a menace to Great Britain during the next 10 years. We are therefore at a loss to understand why Great Britain insisted on the maintenance of a navy which others regard as unduly large. As Mr. Gibson points out in his statement, the limitation of armaments by the three powers will save Great Britain from anxiety in respect of her commercial routes and oversea dominions. We wonder why Great Britain did not realize the fact that a further expansion of armaments means an increase of danger.

The United States' insistence upon 8-inch guns is not without reason; although the American obstinacy is apparently an echo of British stubbornness, we do not see why it is necessary for the United States to persist in demanding many large cruisers and 8-inch guns. The United States, as well as Great Britain, is not free from criticism in that she acted on the idea that war was unavoidable. Consequently, so long as the present international situation exists, disarmament is a very difficult problem.

If no effort is made to solve this problem simply because it is a difficult one, competition will evolve and the result will be destruction. It is therefore hoped that the nations of the world will put forth their energy for the realization of the disarmament movement, the divergent views being taken as a basis for future discussions. Such an important undertaking must not be intrusted tc Governments only, but must be shared by the peoples, who should initiate large movements to urge their Governments toward the lofty ideal.

We greatly regret that the statement issued by the Japanese delegates on the occasion of the unsuccessful termination of the Geneva conference did not contain any ideals for disarmament or conviction in it; it was an idle speech on the compromise plan. Never before has Japan found herself in such favorable circumstances in international assemblies as at the Geneva conference, and never before have her statements attracted such attention. It is no exaggeration to say that the Geneva conference was enabled to keep up its appearance by Japan's contentions, but Japan did not avail herself of this favorable opportunity to bring her ideals before the world for judg-

ment. Her efforts were merely feeble and unsuccessful attempts at mediation. This lack of statesmanship on Japan's part is indeed disappointing. Her lack of moral courage at the Washington conference of 1921 is responsible for the outstanding questions of Singapore and Pearl Harbor. Japan's efforts at the Geneva conference for more than 40 days will likewise be of no avail for the future. The rupture of the conference is ascribed to the insincerity of Great Britain and the United States, but Japan can not be free from criticism, because her delegates failed to grasp a splendid opportunity to save the situation.

NOTE.—It will be remembered that Japan was sincerely desirous of reaching an agreement at Geneva. Probably this desire was based more than anything else upon the fact that Japan requires at present, peace, stability, and economy in order to retrieve her fortunes which have been set back by the earthquake, the financial crisis, and the chaos in China. An excellent example of this pacific desire is afforded in Japan's present attitude of straining herself to be friendly with China. Japan feared that, should the conference fail, she might be caught between a naval competition of the United States and Great Britain and be ruined economically. Evidence of her continued desire for arms limitation is shown in the statement made by Admiral Saito upon his return to Japan, regarding the advisability of continued limitation efforts on Japan's part.—ED.

MEXICO.

A. NAVAL.

1. Visit of Chilean ship to Mexico.

[*Source: Mexican press*]

The Chilean Legation has informed us that the Chilean sloop *General Baquedano* will arrive in Vera Cruz, thus finishing the first part of her training trip to the countries on the Atlantic coast of America.

From Mexico she will go down to Panama and then pass through the canal in order to call at the most important parts of the Pacific coast after touching certain ones in Central America.

This Chilean school ship is of 2,500 tons and mounts 10 rapid-fire and antiaircraft guns and several machine guns and torpedo tubes.

There are on board 350 men, including officers and crew. The training voyage of this ship, which has almost always been made to the countries of Europe and Asia, has this time been made to the countries of the Continent as a proof of international friendship and as a means of obtaining mutual information, which will have far-reaching results for commercial relations between these nations.

Commercially, too, this voyage will have great importance, since the sloop has on board an interesting and complete exposition of the mineral, agricultural, and industrial products of Chile, which the Government of that country has gathered together, being anxious to make known their production and to strengthen commercial interchange with their brothers in race and language.

According to press reports from the countries that this ship has already visited, the trip has been a great success. The Governments, commercial bodies, private individuals, maritime authorities and the press have spared nothing in the way of attentions and facilities.

Cordial receptions have been given the Chileans from Buenos Aires to Habana, where the ship is at the present, having already visited the ports of Brazil, Venezuela, and Colombia.

It can be said, without fear of exaggeration, that the Chilean sloop has made a triumphal tour and that the effect of and interest shown in the voyage has been equaled only in few instances.

The exposition of products has also had a sweeping success, which will be reflected in the future in the form of a practical and effective commercial interchange, since the commerce of other countries will have actually seen the products of Chilean industry and mining and become acquainted with its wines, saltpeter, and Chilean fertilizer.

Without doubt, the march of the Chilean cadets, who are coming to this capital to join those of our country on the 16th of the present month on the occasion of the national holiday, will be a manifestation of great fellow feeling and affection.

The youth of Chile and Mexico will march through our streets fraternally together to martial hymns and under united flags.

NOTE.—The Mexican plans for such a cordial reception are not without their significance, first, because Chile and Mexico have several points in common vis-a-vis the United States, and second, Mexico would probably look with favor upon any common understanding of Latin American nations directed against the United States.—ED.

NETHERLANDS

A. NAVAL

1. Dutch naval policy.

In an editorial entitled "Our Naval Policy," which recently appeared in the *Soerabaiasch Handelsblad*, the Dutch Government's policy with regard to the Netherlands Indian Navy was discussed and criticized at length. Some of the more important points brought out in that article are given in the following paragraphs.

The writer of the article in question states that the Dutch naval policy has become so intricate and involved during recent years that those not directly concerned with naval affairs have lost all interest in the Netherlands Indian Navy and have become more or less antipathetic toward what is now believed by many to be an expensive and useless instrument in so far as the protection of this colony is concerned.

Regret is expressed that there appears to be increasing antipathy toward naval matters and such slight comprehension of the fact that a well-equipped, modern navy is not only essential for the protection, welfare, and prosperity of this colony but for the very existence of Holland as a nation. It is pointed out that the strengthening of naval armaments by the countries most interested in the solution of the so-called Pacific problem is a sign of the times which should not be overlooked by the Dutch Government and should not be forgotten by those who have apparently lost all interest in Dutch naval matters.

The question is asked whether those who are now charged with the sacred trust of building up the navy have fulfilled their duties and responsibilities. It is deemed high time that the people's interest be aroused in the navy, for the maintenance of which millions of guilders are expended each year, and, according to the editorial writer, these large expenditures have not brought the navy to the high level of efficiency on which it should be maintained.

There appears to have been no definite system of expansion prior to 1912. Holland desired to increase its naval forces, but was financially unable to do so. However, so as not to remain entirely out of the race, the Netherlands built several "miniature battleships" which embodied the best features of foreign war vessels in ships which the Dutch Government felt it could afford to construct. These vessels are said to have rendered excellent service during the war, especially in Netherlands India, in maintaining the neutrality of Holland.

A decided change in the naval policy of Holland appears to have taken place in 1912, when the naval laws were changed and provisions made for the construction of large modern war vessels with the necessary lighter auxiliaries. The plans made at that time could not be carried out because of the war, and at the end of European hostilities the depleted condition of the Dutch treasury did not permit the Government to commence an expansive naval building program. The plans for the establishment of a navy on broad, modern lines were set aside, and many believed that this action on the part of the Dutch Government indicated that it was not in a position to defend its possessions without the aid of an ally.

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In 1921 a commission was appointed to investigate Dutch naval needs and requirements, and as a result of this investigation a new naval law was brought into being which provided for the construction of lighter war vessels, and made the submarine the main strength of the fleet. According to this law the navy is only to be used to guarantee Holland's sovereignty and maintain its neutrality.

According to the editorial writer the possibility of protecting all Netherlands India has long been dismissed as impractical, and in an emergency all efforts would be concentrated on the protection of Java. However, the ships which have been constructed and which are planned are of the type which could easily be used in connection with the larger naval forces of a possible future ally. The plans drawn up by the above-mentioned commission appear to have been excellent in their conception, especially for the protection of the Dutch East Indies and the maintenance of Dutch neutrality.

The commission appears to have made an emphatic declaration that the proposals should be carried out as they stood or should not be undertaken at all. The Government, however, only approved of half of the so-called absolute minimum and stated that it felt under no obligation to complete the other half of the program.

Nothing has been done since 1921, and there appears to be no definite plan for a defensive policy. With regard to the composition of the fleet there appears to have been some slight progress as old ships have been replaced by new ones. The writer of the article in question states that had this replacement not occurred Holland would shortly have been without any ships whatever. Reference is made to the great difficulties which had to be overcome by various naval ministers and the numerous obstacles which were placed in their path of duty.

It is stated that the Governor General was forced to promise that the completion of the last two destroyers destined for service in these waters would terminate construction for the time being and that no further requests for ships will be made before 1930. The naval force on which this colony must rely for protection during the next few years consists of 2 cruisers, 8 destroyers, and 12 submarines, which, according to the writer, are entirely inadequate to maintain the neutral position of this colony.

At the present moment no more is heard about the construction of naval bases in Netherlands India. Surabaya is the only base worth mentioning at the present moment, but it is only able to care for a small number of war vessels and can hardly be classed as a naval base of the first rank. Tandjong Priok, the port of Batavia, remains entirely unprotected, and although it will not become the main base of the fleet it would seem to be essential that a harbor of such im-

portance be properly protected. With the suppression of the fleet base question the value of the present inadequate fleet is almost reduced to the vanishing point.

Aside from the reduction in the number of ships with which to defend the country, the absence of adequate naval bases, and the present impossibility of obtaining sufficient funds to build and maintain such bases, it appears that the naval authorities are confronted by a serious shortage of personnel in all grades. The constant pressure for economy has had a most discouraging effect on those charged with the administration of the navy. Another difficulty which has had to be faced is the division of the fleet into two parts, one for Europe and one for Netherlands India. The splitting of the fleet is justified on the basis of economy, but many high naval authorities have expressed the opinion that this is an expensive luxury for a country as small as Holland.

The policy of economy is reflected in the desire for increased personnel in the naval militia and an increase in the number of native sailors. Both of these schemes are still more or less in the experimental stage, but although it may be possible to carry them out, a warning is given that this should only be done with the greatest care and should in no way affect the professional officers and sailors nor reduce the number of such professionals now in service. The experiments which have thus far been carried out indicate the danger in the present policy, and anyone who knows the necessity of a well-trained personnel will readily appreciate the danger in substituting a well-trained staff for militia and native sailors.

It is well known among naval officers and has been stated in the press on various occasions that although the natives make good stokers, and from time to time good sailors, they are as a whole entirely unsuited for the strenuous life and exertion required of them. An officer of high rank in the Netherlands Indian Navy has stated that although the native sailors have thus far proved satisfactory, it is impossible to know how they would act in times of stress and under fire, especially in the event of an uprising among their own people.

The writer of the article in question deplores the present short-sighted policy of economy, especially in view of the greatly improved financial position of Holland since 1923, and states that the navy now stands on an abyss as a result of this blind policy. Should new building cease and the problem of naval bases and personnel remain unsolved, it is predicted that the navy will soon be carried into the grave and then any efforts to rebuild it will be too late.

It is stated that there is still time to correct the mistakes of the past if the people can be brought to the realization that the navy is not a costly establishment, but a most necessary instrument in assist-

ing Holland to maintain its position in the family of nations. The people must demand that the navy be freed from the effects of party strife and other internal politics, and must see to it that men of experience are placed at the head of naval affairs. Furthermore, it is urged that the navy should be developed to the degree permitted by the financial ability of the country.

In closing his article the editor utters a warning that the present antipathy must cease or Holland will some day be faced with the sad results of its own lazy weakness should a conflict break on the shores of this colony or those of the mother country.

NOTE.—It should be remembered that, whereas the Dutch naval force in the East Indies is small in numbers, yet it consists very largely of modern and highly efficient units which would form a very potent defense organization. Furthermore, upon the completion of naval units building in Holland and destined for the East Indies the East Indian Navy will be increased by six modern destroyers of 1,500 tons. In addition, the Dutch East Indian Navy will have, by the end of 1928, 63 modern aircraft.—ED.

B. AERONAUTICAL

1. Army flying field at Soesterberg, Holland.

All Dutch military aviation is concentrated on this station, and is organized as follows:

One reconnaissance squadron of 8 planes, one artillery observation squadron of 6 planes, one protective squadron of 6 two-seater fighters, or a total of 20 aircraft assigned to 6 army divisions. In addition to the foregoing, there are 3 squadrons, each of 10 single-seater fighters, for offensive-defensive use, as may be required. Further in addition, there is a headquarters unit composed of a few aircraft, some of which are equipped for photography. Fokker aircraft of different types are used exclusively.

All repair, upkeep, and service of aircraft is supplied by the technical division of the station, being a group of 250 men, 70 of whom are civilians. The station is thoroughly equipped for all repair and rebuilding work required. Aircraft and engines are kept in excellent condition. Aircraft are overhauled after 250 hours of flying.

The field is 2,624 feet by 3,936 feet and equipped for night flying.

Great attention is paid to the medical aspects of aviation. Pilots are thoroughly examined twice a year and more frequently if deemed necessary. Medical equipment is modern and well kept.

Hours flown per major casualty have steadily decreased since 1920.

Officers, men, and entire station presented excellent appearance.

RUSSIA

A. NAVAL

1. Condition of the Russian submarines.

The entire winter period 1926–27 was devoted to an extremely intensive overhauling of the Russian submarines. All this work was done at the Newsky Dockyard. On November 15, 1926, the submarines were inspected by a naval committee. and the report and findings of this committee were then transmitted to the revolutionary war council. The committee recommended that the repair and overhaul work be started immediately, and for this purpose the submarines were divided into three groups:

First group: The submarines *Kommunist* and *Kommunar*, repairing the motors.

Second group: The submarines *Proletarij*, *Rabotnik*, and *Krasnoarneez*, repairing the ballast tanks and installing new equipment.

Third group: The submarines *Bolschewik*, *Tovarischt*, and *Batrak*, general overhaul and replacing of the old motors.

The report of the aforesaid naval committee was approved by the revolutionary war council on November 27, 1926, and the Newsky Dockyard intrusted with the work which was designated as " urgent " and the directors of the dockyard instructed to complete same with all possible expedition.

The plans of the naval committee called for the work to be finished by the end of March, as was done. On April 13 staff officers of the Baltic Fleet inspected the vessels and the following speeds were attained:

	Submerged	Surface
Kommunist	7	10
Kommunar	8	10
Proletarij	7	14
Remaining submarines	6.5	12

The diving gear operated satisfactorily. The cruising radius of the different boats was determined as follows:

	Miles
Proletarij	700
Kommunist	1,200
Batrak	2,500
Others	1,500

The cruising radius was calculated solely on the fuel supply, and no cruises were undertaken to ascertain the actual extent of the radius.

The new motors were made at the Fiat Works in Italy.

NOTE.—Like all of the Baltic States, Soviet Russia is pinning her naval defense on mines, light surface craft, and submarines, particularly the latter. It has been variously reported that Russia is building numerous submarines, but it is much more likely that, lacking the money for this, they are simply reconditioning the old war-time units. ED.

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2. *Russian naval maneuvers—1927.*

The following maneuvers are reported for 1927: From July 1 on—target practice, mine practice, masking. From July 25 on—defense of the approach to Leningrad.

The second portion of the maneuvers differ greatly from all former maneuvers in that the attempt has now been abandoned to employ all the obsolete vessels of the fleet, which are not only worn out but are also far inferior to the vessels of other European fleets in speed and equipment. The idea of passive defense is also gaining ground, which combines the activities of the naval and coast artillery along with the batteries of Cronstadt and Krasnaja Gorka. The new plan envisages the laying of a mine field at the islands Hochland-Lavansari-Sesker. At some of the weak points the mine field is to be 7 miles in width.

Active operations are only scheduled for the air and submarine forces. The task of the High Seas Squadron is restricted to creating a base for airplanes and submarines on the aforesaid islands.

It is anticipated that the submarines will be very active. They are to cruise as far as the Sund Sea to inspect the mine fields there. The first cruise of the submarines will extend to the Danish coast; only after the enemy has passed the narrows will they transfer their activities to the district of Helsingfors and Riga.

NOTE.—It is most likely that Russian "maneuvers" are not only elementary but actually crude.—ED.

TURKEY

A. AERONAUTICAL

1. *Military aviation matériel.*

[*Source: M. I. D.*]

The following data on airplanes on hand under the Ministry of National Defense has been received:

Make	On hand, 1925	Received, 1926	Obsolete or destroyed, 1926	On hand, January, 1927
Breguet	20	10	14	16
Junkers (land)	10	30	10	[1] 30
Junkers (hydro)		6		6
Savoia (hydro)	17		5	12
Spad		8		8
Moraine-Saulnier		12		12
Nieuport		6		6
Rohrbach		2		[2] 2
Dewoitine		2		2
Training	30		18	12
	77	76	47	106

[1] Probably 30 more received in 1927.
[2] Three more of these have been delivered in 1927.

Total, 139.

SPECIAL ARTICLES

I. JAPAN'S FOREIGN POLICIES.

The following interesting article comprises a concise yet comprehensive review of the subject. It is particularly interesting in view of the results of the late Geneva conference and of the present turmoil in China. In this connection attention is also invited to the special article, "Institute of Pacific Relations."—Ed.

The strength of Japan's naval establishment is determined to a large degree by her foreign policies. For many centuries she had no foreign contracts or interests and maintained no navy. Her present prestige is based to a great extent upon her standing as a naval and military power and upon the successes in the past of her army and navy. Of this fact Japan is fully aware.

The foreign policies of Japan which affect her naval policies and programs may be divided under the following headings. The order in which they are listed is their order of importance at the present time.

(*a*) China.
(*b*) United States.
(*c*) Great Britain.
(*d*) Soviet Russia.

a. POLICIES REGARDING CHINA

The keynote of all Japan's foreign policies is China. No matter what course she may pursue in her relations with other powers, her hope for supremacy in China forms the background of all her foreign policies.

At one time her aim was for political supremacy in China backed up by active military and naval force, as well as for economic supremacy. For this she fought the Russo-Japanese war, and the successes of her fleet in that conflict contributed greatly to the successful conclusion of the war and to the acquisition of control of South Manchuria.

Her next big step in her political aims was the announcement of the "Twenty-one demands" on China, and at that time the "8–8" naval building program was in progress of creation and she saw for herself a political hegemony over China with a fleet sufficiently powerful to back it up.

However, the announcement of those demands brought to a focus the unbroken front of other nations directly interested in China's destiny, opposing Japan's policies and aims.

Realizing that she was not to be permitted to force her authority on China, her policy now underwent a complete reversal, aimed at securing the trade and wealth of that country by conciliation.

Following this opposition, the Versailles treaty, the enforced evacuation by the Japanese of Shantung, and the 5–5–3 ratio established by the Washington conference, Japan outwardly reversed her policy from one of imperialism in China to a policy of nonintervention in the political affairs of China, at least by naval or military means. She set about the task of ingratiating herself with all political factions, hoping thereby to create through an outward friendly attitude an advantage over other powers in establishing a hold on China's markets and China's resources.

As is well known, she recently refused to cooperate with the British in sending military forces to safeguard Shanghai, and in the recent Nanking incident Japanese war vessels stood silently by while British and American war vessels saved the foreign inhabitants, including Japanese subjects, from further outrages. It is known that the Japanese consular representative at Nanking immediately called the attention of the general commanding the Chinese troops to the contrast between the attitude of the Japanese naval forces present and that of the British and American vessels, which had opened fire to save the foreigners at Socony Hill.

In gauging the true significance and possibilities of Japan's present aims in China, a clear understanding must be had of the impelling motives behind such aims.

They may be stated briefly in the fact that Japan herself is in a desperate economic condition, one which may become so serious as to threaten her internal political entity. She has a population of 60,000,000 inhabitants in Japan proper, which is increasing at the rate of 1,000,000 a year. The mainland of Japan, including Formosa, is devoid of natural resources (coal, iron, oil, etc.) on a scale that can assist her in becoming a great manufacturing or industrial country to meet the world competition of other powers more favorably endowed.

Neither can she become a great agricultural nation, as the whole country is mountainous and she is unable to feed herself except possibly under strict rationing in time of war. Her foreign-trade balance is unfavorable, unemployment is widespread, political unrest is prevalent, and the cost of living excessive and increasing.

As regards her dense population the doors of the most prosperous countries, such as the United States, Canada, and Australia, are closed

to her emigrants. Although there are no immigration barriers to the principal South American countries, it is only with the greatest persuasion that Japanese can be induced to go there, and then only with substantial money grants from the Japanese Government.

The only solution which seems feasible to those who control Japan's destiny is to capture China's markets for their trade and to control China's resources for their raw materials, and then proceed to industrialize Japan. This appears to them the only way by which Japan can attain any resemblance of real national wealth and economic prestige, and by which she can avoid slipping down scale as a world power and avoid the possibility of serious internal troubles due to increasing economic unrest.

Pursuant to the above purpose, Japan has established a clear-cut naval policy, which is to maintain a preponderance of naval power in the western Pacific. This was represented at one time by the 8–8 building program, and now by the Washington conference agreement and its restriction on further naval bases in the Far East, and by Japan's large building program in vessels not restricted by the Washington treaty.

The following is quoted from a written statement of Capt. M. Hibino, I. J. N., late of the naval general staff:

> The nations that have the greatest economic interest in the Pacific are England, the United States, and Japan, and they are also the countries that have a naval armament more or less proportionate to their economic standards. Therefore the relative strength of the navies of these powers will ultimately control the international strategical status of the Pacific.
>
> The acquisition and maintenance of sea control over the area northeast of the Indian Ocean and of the western part of the Pacific is the minimum that is to be expected of our navy.

b. POLICIES REGARDING THE UNITED STATES

Japan's foreign policies regarding the United States come under two principal headings, namely, the immigration question and China.

In the immigration question Japan has adopted a waiting policy, hoping that world sentiment will crystallize in her favor and that eventually the United States will be charitable enough to remove what every Japanese considers an effront to their national dignity and racial pride. They are reconciled to the fact that nothing can be done to rectify the situation in the immediate future, and while in all probability the immigration question will not in itself cause a serious situation to arise between the two countries it constitutes a deep-seated feeling of injustice, which may flare up at any time should the interests of the two countries conflict.

There may have been times in the past when Japan did not look askance at the possibility of war with the United States. But such a war now is the last thing that Japan wants, unless it should be necessary as an end toward her success in China. This feeling is fostered by the example of America's tremendous potential military and naval strength as shown in the World War, by the great expansion of her economic power since the war, and by Japan's own serious economic situation at the present time. Neither does Japan fear an unprovoked attack upon Japan itself by either the United States or Great Britain, the only two countries she must consider from a naval standpoint.

It may be asked then, why Japan is determining to maintain her naval supremacy in the western Pacific. It is simply the fact that what she does fear is that in the final settlement of China's destiny she may find herself outdistanced by western powers, principally the United States and Great Britain, whose capacity for the peaceful penetration of China from an industrial, economic, and trade standpoint is far greater than her own.

If in the very probable contingency of such a situation arising in the next 20 years Japan finds the way being blocked to her only hope for real national wealth and economic relief for her dense population, the grave danger will exist that the relations between Japan and the western power or powers whose trade expansion and trade competition is responsible will be strained to the point which in the past has led to major armed conflicts. That the United States must figure to a greater or lesser extent in this situation is inevitable, and it is a certainty that Japan's readiness to accept or challenge the rôle which the United States must necessarily play by virtue of the latter's great wealth, expanding trade, and responsibilities will depend largely upon the balance of naval power in the Pacific between the United States and Japan.

c. POLICIES REGARDING GREAT BRITAIN

The foreign policies of Japan in relation to Great Britain from a naval standpoint are similar to those of the United States, with the important difference, however, that America has a greater stake in the Pacific than Great Britain.

In the British dominions the immigration question plays some part, but as in the case of Japan's relations with the United States, the future of China is by far the most important question which might arise between Japan and Great Britain.

The deep concern of the Japanese over the Singapore naval base project is not due to fear of an attack from Great Britain, but is

founded upon the specter of British naval forces being so based that they could threaten Japan's eventual freedom of action in China and threaten the control by the Japanese Navy of communications between Japan and the Asiatic Continent.

The Singapore base also threatens the control of another line of communications vital to Japan, namely, that to the Dutch East Indies, from which Japan must get her oil both in time of peace and time of war.

There still lingers in Japan the rosy memory of the days of the Anglo-Japanese alliance, which marked the peak of Japan's prestige and prosperity. There is the feeling, however, that Great Britain let Japan down when that alliance was terminated at Washington, and since then British policies in the Far East have been regarded with growing suspicion by the Japanese.

While the Japanese naval general staff still regards the United States as their "most probable enemy," they undoubtedly have now begun seriously to figure upon the possibility of conflict of interests between Japan and Great Britain.

d. POLICIES REGARDING SOVIET RUSSIA

Japan is afraid of Soviet Russia and the soviet influence in Asia. The communistic creed is the antithesis of every principle upon which the social and political structure of the Japanese nation is built. And yet the Japanese were among those countries which established diplomatic relations with the soviet government. The reasons for this action on the part of Japan are apparent. In the first place, Russia in Manchuria and Siberia was a dangerous neighbor with whom it was best to be on friendly terms. Secondly, Japan wanted the oil in North Saghalien, and the concessions given to Japanese oil companies there were undoubtedly a part of the bargain for diplomatic recognition on the part of Japan.

At the present time everything appears to be serene in Russo-Japanese relations, with the exception of questions arising over the construction of new railroads in Mongolia and Manchuria. The Japanese military general staff, however, regard Russia as their "most probable enemy," and the Japanese police regard with suspicion any soviet citizen who lands in Japan. A Russian grand opera company had a difficult time last winter getting enough of their members past the port police authorities to put on a performance in Tokyo.

At best the present relations between Russia and Japan are a matter of expediency, and are such that they would be seriously disturbed in case of a real clash of interests in China, or any attempt

on the part of the soviets to duplicate their Arcos House organization in Japan. It is not believed, however, that either contingency is likely to arise in the near future.

From the naval standpoint the mission of the Japanese Navy in the event of war with Russia would be to safeguard the transportation of troops to the Asiatic continent and to make secure that line of communication. Both of these functions are well within the capacity of the Japanese Navy.

e. CONCLUSION

(1) Japan believes her economic supremacy and as far as possible political supremacy over other nations in China to be vital to her existence. To her it is not a matter of expediency but a matter of life and death.

(2) While her present attitude is one of lofty self-abnegation and friendship for China and China's aspirations, she is undoubtedly working quietly toward the above aims.

(3) Whether she may or may not be justified in those aims, the fact remains that she is sure to meet the stiffest kind of competition from every quarter for the rich trade stakes in China.

(4) If in order to accomplish her aims she should finally be forced to adopt means considered unethical, and judging from her past performances such a contingency is not unlikely, there will be a clash of interests which will bring about a serious situation.

(5) It is for just this possible contingency that she is striving to the limit of her financial ability to maintain her naval supremacy in the western Pacific. The readiness with which she would finally put this naval power into operation will depend upon her chances of success. Should America in the course of the next 20 years, with her expanding trade, enormous investments abroad, and increasing responsibilities in world affairs including those of China, prove to be the stumbling block to Japan's economic conquest of China, Japan in the final analysis will not hesitate to adopt any means to save herself from eclipse, including a challenge for naval supremacy, if America's naval power is neglected to such an extent that Japan can see any chance of success.

(6) It is not believed that she will take that chance if America's naval strength is maintained, by agreement or otherwise, in a ratio of 5–3 to that of Japan.

II. THE INSTITUTE OF PACIFIC RELATIONS.

World interest in the matter of peace and understanding between nations and especially an increased interest in these matters among our own people should require of the service a knowledge of these currents of thought and opinion in order to correctly weigh their importance, measure their effect, and allow for them accordingly. Several institutions have been created in this country since the war with the object of either promoting peace and understanding or of investigating the problems pertinent thereto, or both. Notable among these are those at Williamstown, the Universities of Virginia, New Hampshire, and Chicago, and the Institute of Pacific Relations at Honolulu. There follows an able report on the past session of the latter.—ED.

On July 15, 1927, the second conference of the Institute of Pacific Relations convened in Honolulu for a two weeks' session. Representatives of nine countries bordering on the Pacific, or whose interests are largely centered in the Pacific area, came together for the purpose of discussing in an unofficial manner the more vexatious problems which have been a source of friction between the peoples of the Orient and the Occident. The nine countries represented at this conference were the United States, England, Canada, Australia, New Zealand, Philippine Islands, China, Japan, and Korea. Though practically all phases of international relations were discussed, the principal interest of the session seemed to center on the Chinese situation and the problem of population and food supply, as well as the kindred problem—the question of emigration and immigration.

HISTORY

The Institute of Pacific Relations is the outgrowth of an idea which had its inception a number of years ago in a suggestion of Alexander Hume Ford, director of the Pan Pacific Union, for calling a Pan Pacific conference of the Young Men's Christian Association. At that time a group of the more influential men of the community had been holding regular meetings for the purpose of studying the causes of friction among the various racial groups which make up the population of the Hawaiian Islands.

Ford's suggestion was seized upon by them as a means of bringing together leaders of the different countries bordering on the Pacific for a discussion of their various problems in the hope that a better understanding might result.

Though the scope of the idea had grown to greater proportions than had at first been contemplated, it was deemed best because of the international character of the organization, to hold the conference under the auspices of the Young Men's Christian Association. Accepting the responsibility, this organization appointed a central committee, consisting of Frank Atherton, prominent Honolulu business man; Arthur L. Dean, then president of the University of Hawaii; and Charles F. Loomis, secretary of the territorial committee of the Young Men's Christian Association.

This step was taken in September, 1924, and during the following year these men traveled about the country and succeeded in rousing the interest of many of the leading educators in the conference which was scheduled to meet in Honolulu in July, 1925. The Institute of Politics at Williamstown, Mass., also evinced an interest in this new experiment in international rapprochement, and under the stimulus of this organization the scope of the proposed conference grew to even greater magnitude.

It now became the aim of the conference to bring together not only the leaders of thought of the different nationalities and races in the Pacific area but experts as well who were familiar with the problems of all walks of life in each of the countries. Labor, politics, education, the church, social agencies, women's organizations, business, commercial, and professional life, as well as the press, were to be represented. Problems of international law, race problems, economics, immigration, and kindred subjects were to be especially studied.

The first conference of the Institute of Pacific Relations was financed largely by the Laura Spellman Rockefeller Foundation, the World Peace Foundation, and a number of private individuals and business firms.

At the 1925 conference the foundation of a permanent organization was laid. It was decided to maintain a central headquarters and secretariat in Hawaii, with national headquarters and secretaries in each of the participating countries. Scientific research along all lines bearing on the influences, development, and welfare of the peoples of the interested countries was to be one of the principal activities of the organization.

Gratification with the results of the first conference led to the decision to repeat the experiment in 1927. Dr. Ray Lyman Wilbur, president of Leland Stanford University and chairman of the 1925 institute, was reelected as chairman for the 1927 conference.

SECOND CONFERENCE

The machinery created at the first conference was at once put into operation. Each country created its own national council and a secretariat to be located in Honolulu was formed. It consisted of J. Merle Davis, general secretary; Charles F. Loomis, assistant general secretary; and J. B. Condcliffe, research secretary. The latter, Professor Condcliffe, arrived in Honolulu from New Zealand in February of this year. He was formerly connected with Canterbury College, New Zealand.

In preparation for the 1927 conference a number of pamphlets were published. These embodied the results of investigation and re-

search in the social and economic fields, in the field of race relationships, and in international law. A study of the immigration laws of the countries bordering on the Pacific was also made.

The conference received a great deal of advance publicity and much space was accorded it by the press. The national councils of the different countries selected the delegates to present the problems uppermost in the national minds of each.

The unofficial character of the conference and the organization itself, taken together with the aims and purposes announced, naturally presupposes a membership made up largely of educators, religious leaders, and leaders in pacifist movements. In fact quite a number of the American delegates are active in peace organizations. The English group was the only representation in which the political phase of national relationship predominated.

The fact that England sent a delegation at all is indicative of the growth of the idea on which the institute was founded. At the first conference, while Canada, Australia, and New Zealand were represented, it was found that these dominions were not in a position to speak with first-hand knowledge of England's far eastern policy, which placed her at rather a disadvantage. Therefore at this second conference she was represented by a delegation of 12, headed by Sir Frederick Whyte, former speaker of the National Indian Assembly and an authority on eastern affairs. The entire British delegation was made up of members of the Royal Institute of International Affairs.

The League of Nations also took cognizance of the conference, sending three observers—H. R. Cummings, of the information bureau of the League of Nations offices at Geneva; William Caldwell, of the international labor office; and S. Aoki, head of the Tokyo branch of the League of Nations. As a preliminary to the conference the league issued a publication entitled "Notes on Certain Aspects of the Work of the League of Nations of Interest to Pacific Countries."

Perhaps the strongest point stressed in all the deliberations was the growing importance of the Pacific area and the shifting of the center of trade and political interests from the Atlantic to the Pacific. On all sides the opinion was expressed that the Pacific is about to become the world's arena of trade and the future center of international relationships—and, perhaps, of international conflict.

Doctor Wilbur, chairman of the institute, summed up the purpose of the conference in the term "mental disarmament." He took the view that the mutual contacts with representatives from the various countries and the exchange of information and the dissemination of same would go far toward bringing about mutual understanding between the countries.

Of the 132 delegates who attended, 43 were American; 17 Japanese; 16 Canadian; 15 Hawaiian; 14 Chinese; 12 British; 6 Australian; 4 New Zealand; 3 Philippine Islands; 2 Korean. There were also 4 observers—3 from the League of Nations and 1 from Korea.

The program was arranged after the plan adopted by the 1925 conference. This consisted of three types of sessions—the round tables, attended by small groups for the intimate discussion of different aspects of a general topic; forums, at which the whole institute met and heard reports from the discussions of the round tables, and where each member had the opportunity to speak on any topic presented; and open lectures to which the public was invited. Only members of the institute were admitted to the round tables and forums.

CONDITIONS IN CHINA

The first three days of the conference was given over to the discussion of the Chinese situation.

Practically all of the Chinese delegation were pro-Nationalistic in sentiment. In fact, it was announced that Gen. Chiang Kai-shek, commander in chief of the Nationalist Army, had contributed $2,000 Shanghai money toward the expenses of the group.

Sir Frederick Whyte, chairman of the British group, presented the British side of the question. He declared that England stands ready to meet China halfway, and will relinquish special rights in proportion as China can guarantee to safeguard the ordinary rights of foreigners in her territory. Though England is placed in the peculiar position of dealing with a country which has as yet no established government, she has already taken steps to readjust her status in China through the reliquishment of concessions, which has either been accomplished or is in process of negotiation; through the restoration of the mixed court at Shanghai to Chinese control; and through the relinquishment of her share of the Boxer indemnity.

Dr. David Z. T. Yui, chairman of the Chinese delegation, replied that the many gestures of friendship toward China by foreign powers had proved to be "mere gestures." The tariff conference, he said, "left the Chinese people unsatisfied and dissatisfied"; though an extraterritoriality conference was held, extraterritoriality privileges were still enjoyed by foreigners in China; the American memorandum was declared to be unsatisfactory, in that it failed to clearly define American friendship; while the Japanese memorandum, which made a favorable impression at the time, was practically annulled by the Tanaka Government. Doctor Yui directed attention to the presence of foreign troops and men-of-war in Chinese territory, and pronounced it an infringement of sovereignty which can not be justified.

The British protestations of friendship for China failed to arouse much enthusiasm in the local Chinese community, if the Hawaii-Chinese News, the organ of the Hawaii-Chinese Civic Association, is a reliable indicator of local Chinese public opinion. Editorially this paper calls on England to prove her sincerity by the immediate cancellation of all unequal treaties and relinquishment of the "British concession in Shanghai," which, in fact, does not exist.

From the standpoint of a British consular official, whose post was for years on the Yangtze River (Wuhu, Nanking, and Hankow)—three years as attaché at the embassy in Tokyo and nine years as consular general at Tientsin, from which post he is retiring—one of the greatest difficulties in the present Chinese state of affairs is how far to go in the way of concessions to meet the situation.

If Great Britain offers to give up too much, the Chinese will consider such procedure as proof positive of folly or of weakness, and increase their demands beyond all reason, so that nothing will be gained and British prestige will suffer further serious loss.

COMMUNISM AND NATIONALISM

Bringing the discussion around to the presence of the communists in China, Doctor Yui admitted his cognizance of the fact that the aid extended by Russia to the Nationalist cause was tendered with the ultimate purpose of using China for a pawn; but he entertained no apprehension as to China's ability to throw off the Russian influence when the time comes that it will be no longer useful. He lauded the organizing ability of the Russians, which so successfully maneuvered the northern expedition of the Nationalist Army over the mountains of Hunan and Kiangsi to the Yangtze Valley in such a comparatively short time. He admitted, however, that their subversive influence almost destroyed the success they had helped to win. It was the communists, he declared, who instigated the outrages at Nanking, which split the Kuomintang and resulted in the establishment of the rival governments at Nanking and Hankow.

He takes the sanguine view that the communistic influence is on the wane, and the power of Bordin vanishing. The Chinese, he averred, are not communistic in the Russian sense of the word, and steps are now being taken to "clean up communism" in the Kuomintang.

Dr. Henry T. Hodgkin, secretary of the National Christian Council of Shanghai, and a member of the British delegation, did not concur in this optimistic outlook on the situation. In his opinion the Russians are so strongly entrenched that the Kuomintang will be powerless to dislodge them.

This is the greatest stumbling block to the unification of China in his estimation. The Russians supplied the agressive element which the Kuomintang lacked, and by the prompt recognition of the Nationalist government they gained the confidence of the party. Now the Kuomintang is faced with the alternative of dropping the code and ideals of Doctor Sun-Yat-Sen or of ousting the Russians. He feels that the party dares not drop the principles of Sun-Yat-Sen, for the older members would never tolerate it; yet, on the other hand, if the Russian element is dropped, the party will lose the strength and force that have carried it so far toward victory.

The second obstacle to the unification of China lies in the probable revival of the age-old antagonism between North China and South China. Another unfortunate feature mitigating against the unity of the country is the lack of teamwork among the leaders. They are so influenced by distrust and jealousy that the accomplishment of any well-defined plan is well-nigh impossible.

FOREIGN MISSIONS

The question of foreign missions was touched upon, and Doctor Yui asserted that animosity and resentment toward them is almost universal in China, owing, in main, to the attitude of patronage and superiority adopted by the missionaries. He named five reasons for the anti-Christian attitude of China.

a. The work of the missionaries being mixed up with foreign interests.

b. The influence of the communists, who are antagonistic to all religion.

c. The attitude of the Nationalists, who regard religion as superstition.

d. The failure of Christians to live up to the ideals they preach.

e. The patronizing attitude of the missionaries.

Dr. Edward H. Hume, former president of Yale in China, member of the American group, declared that the whole structure of missionary work in China is crumbling.

RADIO

The radio situation in China was dealt with by Col. Manton Davis, of the Radio Corporation of America. Radio in China was described as being in a chaotic state, owing to the existence of three contracts—with America, Japan, and England. The Mitsui Co. of Japan, claims a monopoly, and while this is not inconsistent with the terms of the American contract the latter conflicts with Japanese claims. The British contract, which chiefly concerns the purchase of equipment, has been allowed to fall into the background. The

British are apparently supporting the Japanese claims rather than urging their own.

Japan has suggested that both contracts (American and Japanese) be canceled, and a plan worked out whereby China may borrow money to purchase the Mitsui Co. and later erect additional stations as the need arises.

POPULATION, FOOD SUPPLY, AND IMMIGRATION

In the round table and forum discussions the problem of population and food supply and the problem of immigration were considered separately, yet the two questions were in reality interdependent and as such are considered in this report.

The Japanese delegates brought forward a mass of statistics to show that Japan has reached the saturation point of population, while her resources, developed to the maximum many years ago, have failed to keep pace with this enormous increase. In the past 60 years the population has doubled. At the time of the Meiji Restoration it was 32,000,000, while to-day it is more than 60,000,000. The increase in 1926 alone was 1,000,000.

The problem of unemployment is now becoming acute. Largely an agricultural country and the great bulk of the population peasants, Japan's resources are overtaxed to support the demands upon them, and vast numbers of people are in an almost constant state of semiunemployment, according to a report read by Dr. Shiroshi Nasu, professor of economics at the Tokyo Imperial University.

Four remedies, he said, have been advocated, though none offer a practical or satisfactory solution. The measures suggested are expansion of industry, reorganization of the economic system, decreasing the birth rate, and emigration.

The first two suggestions offer little hope under prevailing conditions in Japan; the third, birth control, could not, he said, perceptibly alter the situation for many years to come; even emigration, with all barriers removed, would not greatly alleviate conditions, as it would be technically impossible to remove a million people from the country.

Doctor Sawayanagi contended, however, that emigration is the most vital point of the whole problem. He questioned the right of countries to enact legislation based on race discrimination, as he declared the American immigration laws to be. He emphasized the point that only in the countries bordering on the Pacific are there sufficient lands and resources still undeveloped to offer a field for the overcrowded populations of the Orient, and these are closed to oriental immigration. He predicted that the day would finally come when the "natural right of immigration will prevail." Acute, though Japan's problem of overpopulation may be, he denied that emigration exigencies would ever result in war.

Rather a contrary view was implied by Doctor Nasu, who said, in effect, that "the practice of erecting immigration barriers by countries vast in area and rich in resources, thus forcing upon the countries of small area and restricted resources the burden of overpopulation and low standards of living, is scarcely a sound policy of promoting international peace." The Nippu Jiji, the more conservative of the Honolulu Japanese language papers, commenting editorially on the discussions relative to food, population, and emigration, said in warning: "The foreign countries which have the capacity of absorbing large numbers of these emigrants are closed to them, and the situation may culminate into a serious crisis."

Throughout the sessions the Japanese delegates brought every argument and every trick of oratory to bear upon the American members for the purpose of creating a sentiment favorable to the lifting or the modification of the American immigration laws. Though the immigration statutes of Australia and Canada were occasionally referred to, it was America's immigration act of 1924 that formed the storm center of the discussions.

The Japanese members especially sought to influence sentiment in favor of a modification of the exclusion act which would place immigration from Japan on a quota basis similar to immigration from European countries. They based their protests on an appeal to America's "sense of justice," urging that she recognize the "natural right of emigration over the legal right."

Papers were prepared by a number of American and British delegates, all of which tended to show that the high living standards of the English-speaking countries constitute the greatest barrier to unrestricted immigration from the Orient. The difference in cultural standards was also emphasized, and in the case of the United States an objection was raised to admitting a large class of immigration who are not only racially unassimilable but are disqualified by law for citizenship. Delegates from Canada, Australia, and New Zealand all stated unequivocally that there was no place in their respective countries for the establishment of centers of oriental culture. These countries are bent upon raising rather than lowering their living standards; and it seemed the consensus of opinion that a large influx of immigrants of low standards of living tends to lower the standards of the receiving country rather than to raise those of the newcomers.

The part the American Federation of Labor played in obtaining the passage of the 1924 exclusion act was introduced into the discussion by Bunji Suzuki, president of the Japanese Federation of Labor. He severely criticized the American organization, declaring that labor should know no race, color, or creedal barriers. He further proclaimed that the day of "might is right" has passed, and

that the solution of immigration questions can not be brought about by compulsion. "Solidarity of labor," he said, "demands that labor of the more advanced countries instead of discriminating should take cooperative measures in uplifting labor of the less advanced countries."

Paul Scharrenberg, secretary-treasurer of the California State Federation of Labor, replied that the exclusion act had been brought about through dissatisfaction with the workings of the "Gentlemen's agreement," and the indifference of the diplomats, who, disregarding the wishes of the people, permitted the vast influx of Japanese and Chinese immigrants. When they threatened to crowd out white labor the politicians took a hand and thus brought about the present restrictive measures.

As proof of the wisdom of these measures, Scharrenberg cited Hawaii as an example of what would surely have happened on the west coast if oriental immigration had not been checked.

Ten years ago, he said, there was a strong labor council here in Hawaii. Its passing had been brought about by the orientals, who through their lower wage scale have forced out the white mechanics.

He opposed the adoption of a quota system for Asiatic countries on the ground that Asiatics are by law ineligible for citizenship. He further counseled the Japanese to let the immigration matter rest until the distrust and prejudice on the west coast have died down: then, perhaps, there may be a chance of adopting some kind of quota system; but, he repeated, this is not the time to revive the issue. James D. Dole, president of the Hawaiian Pineapple Co., Honolulu, also advised against agitation of the immigration question at this time, as any untimely action would only involve matters still more.

While there was some suggestion of an international machinery to handle the immigration problem, it was generally conceded that immigration is a purely domestic issue.

JAPAN

Certain aspects touched upon in the discussions concerning present-day Japan reveal the growth of the German or Russian type of socialism, the growing power of labor, and the development of industrialism.

Yusuke Tsurumi, writer and publicist and professor in the Tokyo Imperial University, described Japan as a country no longer united in thought and aspirations. The steady growth of socialism as taught by Karl Marx and expounded by Lenin is a factor to be reckoned with. There are now, he said, three distinct schools of thought—the old traditional collectivist ideal, the more moderate democratic ideal of liberalism, and the communistic ideal. However, while Japan is becoming occidentalized in many ways, signs of a

spiritual reaction may be perceived. The younger generation, he claimed, is turning again to the ancient philosophy, traditions, customs, and thought of old Japan, under which the collective concept of the State as opposed to individualism is taught and a strong sense of nationalism developed.

Bunji Suzuki, president of the Japanese Federation of Labor, portrayed the growing power of labor in Japan. He predicted that the extension of the franchise will increase the votes in the elections next spring from 3,000,000 to 13,000,000. Practically all of the new voters are of the laboring class. He anticipates that from 50 to 60 labor candidates will enter the field. At least 15 of these, he estimates, will stand a good chance of being elected.

Dr. Shiroshi Nasu, professor of rural economics, Tokyo Imperial University, described the development of industrialism in Japan, the changes in the general character of the country and in the traditional social order as well, which have taken place during the 60 years since the Meiji Restoration.

The pressure of increasing population and the limited amount of agricultural space has forced Japan to alter her predominantly agricultural character and turn to industrialism as the only means of meeting the acute situation. He estimated the present industrial population of Japan at about 4,000,000 of whom approximately 300,000 are organized into about 500 different trade-unions.

Though Japan is numbered among the eight great industrial powers of the world, Doctor Nasu sees little hope of sufficient expansion to meet the exigencies of the situation.

KOREA

An appeal for the restoration of Korea's national identity in culture and civilization formed the keynote of addresses made before the institute by her two delegates, Prof. Uck Kyum Yu, dean and professor of law at Chosen Christian College, Seoul, Korea, and Miss Helen Kim, dean of Ewha College, Seoul.

Miss Kim's plea was especially eloquent. She reviewed Korea's long history and the story of her isolation from the rest of the world. Prior to the seventeenth century, she said, Korea's doors were closed to all the world, save for occasional intercourse with China—a policy which was continued, as far as possible, until 1880, when the development of the modern world forced her to throw open her doors to commerce. Weak, both politically and industrially, this step marked the beginning of the decline of the "hermit nation," for the coming of the diplomats, the missionaries, and the agents of commerce finally compassed the loss of her national entity.

Described as a small peninsula of about 14,312 miles in area, Korea must support a population of approximately 19,000,000. Over 14,000,000, or 80 per cent, is an agricultural population. The living standard is very low; industrially the nation is weak—a condition which has brought her to her present state of subjugation, in which all her policies, both domestic and foreign, are dictated by foreigners and in which she has little or no voice.

There is now, however, an awakening national consciousness, which demands the restoration of Korea's former status, and with this ambition to the fore there has come a realization of Korea's weakness—lack of material resources and lack of educational standards—which must be overcome. As a result a wave of thrift has swept the country, and the people are saving their money. Together with this desire for material advancement has developed a strong desire for education, and the colleges are filled.

Lacking in leadership, Korea appreciates the need of developing leaders among her own people, not only in politics but in all lines of endeavor, and to that end people of widely divergent opinions and beliefs are uniting to promote the advancement of the country.

Realizing that in clinging too closely to the past she will block her own progress, Korea is striving to assimilate western culture and civilization to a great extent, declared Miss Kim. However, in spite of the growing tendency to discard overemphasis of the past, Korea is reluctant to part with many of her old customs, particularly in the realm of family relationships.

Korea's attitude toward Christianity is described as friendly, though her delegates see little value in the presence of many different denominations. A single denomination, said Miss Kim, is the only solution of the question for Korea, if only because the country is too small and too poor to support many different churches.

PEACE MEASURES DISCUSSED

Dr. James T. Shotwell, director of the division of economics and history of the Carnegie Endowment for Peace, introduced a draft of a proposed treaty designed to outlaw war between Japan and the United States.

This draft embodied a clause in which Japan and the United States would "mutually undertake that they will in no case attack each other"—this stipulation, however, not to apply in the case of legitimate defense or in action by the United States in pursuance of the policy of the Monroe doctrine. The treaty would further provide for arbitration of all disputes, except those which under international law come solely within the domestic jurisdiction of one or the other of the contracting parties. The covenant would go into effect at

once, remaining in force until 12 months after either party had notified the other of intention to terminate it.

It met with the approval of the majority of the members who discussed it, though the Japanese felt that the inclusion of the exception in the case of the Monroe doctrine would be unacceptable to Japan, as the Monroe doctrine is not recognized as a principle of international law.

Some of the American delegates took the view that such a treaty is unnecessary and war between the two countries a virtual impossibility, while others saw in the various points of friction the seeds of a future conflict in the Pacific. These advocated that immediate steps be taken toward the construction of the machinery of peace.

Mrs. Carrie Chapman Catt, chairman of the committee on the cause and cure of war, declared that before such a treaty could be signed the principal points of friction would have to be removed. To this end she advocated the opening of the doors of English-speaking countries to oriental immigration, implying that America should take the lead in this.

She further denounced the leading financial groups in the United States as "imperialists," exploiting the weaker nations and dictating the policy of our Government in the matter of keeping gunboats and troops in foreign countries to protect their own private interests. The only protection of smaller and weaker nations against this "imperialism," she said, "lies in absence of resources and opportunity; all others are certain to be found lacking in the qualities of self-government." Continuing, she urged the institute not to confine its researches and studies to academic and scientific realms, but to enter the field of international relationships. Solution must be found for three fundamental problems, she said.

First, means must be found to protect life, property, and liberty of nationals without recourse to arms and nations educated to the new standards; second, principles of international relationships guaranteeing justice to all concerned must be evolved and nations elevated to that standard; third, a different method than war must be found for settling disputes and made popular.

F. W. Eggleston, attorney general for Victoria, Australia, recommended that a disarmament clause be incorporated in the treaty proposed by Doctor Shotwell. He advocated the destruction of all naval bases in and near the Pacific and the conclusion of treaties guaranteeing that fleets from outside the Pacific would not be moved to Pacific waters. He held that the long distances between Pacific bases would make such a plan feasible. Eggleston afterwards remarked that he made this suggestion solely to obtain reactions. He failed of his purpose, however, as his proposal evoked neither discussion nor comment.

It is evidently the view of New Zealand, as well as Australia, that the best guaranty of peace in the Pacific lies in the effective presence of the British Fleet. It will be remembered that Prime Minister Stanley Bruce, of Australia, said recently that "The British Fleet is the strongest guaranty of peace in the world to-day."

The delegates from New Zealand told of the whole-hearted support accorded the Singapore naval base, and the agreement of the New Zealand Government to contribute, subject to the approval of Parliament, the sum of £1,000,000 over a period of years to the project. The arguments given in support of the base at Singapore were:

a. That the British fleet is one of the greatest securities for the peace of the world.

b. That this security can only be maintained by providing the fleet with the means to operate effectively.

c. That a naval base at Singapore is the one place from which the British Fleet can operate effectively in the Pacific area.

d. That if you exclude the Pacific from the area in which the British Fleet is effective, you exclude one of the greatest instruments for maintaining the world peace.

It was declared that the establishment of the Singapore naval base will afford complete protection to New Zealand and Australia.

MANDATES

The New Zealand group presented a report on the mandate of Western Samoa, which the New Zealand Government assumed under the provisions of the League of Nations covenant, 1920.

The administration of the islands consists of a legislative body of not less than six official members appointed by the Governor General and not exceeding six unofficial members, three of whom are elected on a franchise exercised by the male European population, subject to property or income qualification. In each of the 32 districts of the islands a chief is appointed over the native population of the district.

The development of the resources of the Pacific Islands, Mr. Nash, secretary of the New Zealand Labor Party, declared, presents a very difficult problem. While the islands are well adapted to the production of tropic fruits which have a ready market in other countries, there is not sufficient available labor to develop these agricultural resources. The importation of labor would only accentuate the problem by displacing the native, who shows little tendency to work, at best and would eventually bring about the extinction of the latter.

It is the policy of New Zealand, said Mr. Nash, to encourage the natives to own and till their own land and to readjust their standards and customs to something more nearly approaching those of the twentieth century. As a step in the accomplishment of this program

he earnestly recommended that the resources of the Pacific Islands be made available to the rest of the world as speedily as possible and as far as possible.

Taking the Hawaiian Islands as an example, Dr. Peter Henry Buck, Maori leader of New Zealand, declared that the other islands in the Pacific possess the same geographic and other advantages the Hawaiian group enjoys. With an equally intelligent development, he said, they can all be made available to all the peoples of the Pacific without the fear of overcrowding for many years to come. As conditions are there is danger that many of the Pacific Islands will either become depopulated with the passing of the Polynesian peoples or pass into Chinese occupation.

At the present time there are about 2,000 Chinese in Western Samoa, who came as indentured labor during the German occupation of the Islands. Since at the present time the native labor is insufficient to maintain the plantations, the contract system is still continued; but it is to be abolished entirely as soon as the natives themselves are sufficiently trained for the work. Under the terms of the contract the Chinese are not permitted to settle in Samoa and are not allowed to marry Samoan women. The continuance of this policy will undoubtedly prevent the Chinese gaining a foothold in Western Samoa as they have done in Tahiti, of the Society group, which is under French administration. In the Society Islands they have become so strongly entrenched that they have virtually displaced the natives.

In Western Samoa a certain opposition to the administration has arisen, and the New Zealand Government has adopted a policy of deportations to meet the situation. This, according to one of the delegates, has aroused much opposition, not only in Samoa but in Parliament as well, but it is felt that the interest of the mandate requires this measure. "All parties," said this member, "are agreed that the interests of Europeans shall not be allowed to override the present policy of treating the welfare of the natives as paramount." Since the close of the institute, a news item in the Honolulu Star-Bulletin announced that the laws governing Western Samoa had been amended, widening the powers of the authorities regarding deportations, by removing the protection formerly afforded by some years' residence in the islands.

Another aspect of the New Zealand mandate of Western Samoa was recently presented by Clem Yore, Colorado novelist, recently returned from there, in an article appearing in the Star-Bulletin just after the close of the Institute of Pacific Relations.

In this article he pictures Western Samoa as on the verge of revolt against the administration of Governor General Richardson, who, he says, " rules with a rod of iron, is implacable, and is trying to

of Filipino laborers to Hawaii. He expressed himself as opposed to the wholesale departure of Filipinos from their homeland.

While he voiced the hope of eventual independence, he opposed the use of force. He suggested, further, as a means of dealing with the problems confronting the Philippines that a commission of 14, comprising 7 Americans and 7 Filipinos, be appointed.

Immediate independence was asked by the third delegate, Rev. Nicolas Dizon, pastor of the Filipino Methodist Church of Honolulu. He based his plea mainly on the sentiment for independence.

He does not recognize the often-advanced objections of oriental encroachment or the danger of civil war as well grounded or as adequate reasons for withholding independence. The loss of free trade with America, he believes, could be averted. It develops, he said, a high standard of living without developing with it the inherent ability to maintain that standard.

He advocates an independent republic under the protection of the United States.

HAWAIIAN-BORN JAPANESE

The situation of the Hawaiian-born Japanese was discussed by Dr. Roy Akagi, general secretary of the Japanese Christian Students' Association of North America, and Doctor Sawayanagi, president of the Imperial Educational Association of Japan, head of the Japanese delegation.

Vocational guidance was stressed by Doctor Akagi as the vital need of the second generation Japanese. Vocation opportunities for Hawaiian-born Japanese on the mainland are not so good as many of them are led to believe, he asserted. There still remains the question of race prejudice, though, he said, that alone need not stand in the way, as there is evidence that it is on the wane. As an example, he cited two instances—one a Japanese graduate of a California normal school, who is now a teacher in one of the Los Angeles grammer schools, and the other a Japanese who received a civil-service appointment in the same city. In view of the conditions existing in California he regards this as very significant.

Another phase of the situation is the existence of a certain ill feeling between the Hawaiian-born Japanese and those born in California. This, he said, is brought about more by the clannish tendencies of the Hawaiian-born Japanese on the mainland than by any other factor. Even this phase is beginning to disappear as the Hawaiian-born are coming more in contact with the California members of their race.

One of the striking differences between the second generation Japanese of Hawaii and those of the second generation on the mainland is seen in the fact that the Hawaiian-born Japanese are from 10 to 15 years older than the second generation on the mainland. This

is accounted for by the fact that the Japanese came to Hawaii about 8 or 10 years earlier than to California, where the peak of Japanese immigration was not reached until about 1910.

Another interesting difference between the Hawaiian and the mainland Japanese of the second generation is that the Hawaiian-born Japanese have a fair knowledge of the Japanese language, which those on the mainland do not possess; but, on the other hand, the young Japanese on the mainland have a better command of English.

Doctor Sawayanagi emphasized the value of a knowledge of the Japanese language. It should be studied, he said, with the view to smoothing out international relationships. He advised the Japanese born in Hawaii to choose Japan as the scene of their life work. To this end, he pointed out, a knowledge of Japanese is absolutely essential.

He exhorted the second-generation Japanese to bear in mind that they have two missions to perform—the first, to be at all times loyal citizens of the United States. He reminded them that their privileges of citizenship in this American community marks the first time in history that Japanese have ever been given the opportunity of sharing equally with Caucasians in civic and political affairs. He admonished them, however, not to forget their racial heritage and characteristics, but to combine their national traditions with their American education in the performance of their duties as American citizens.

The second mission of the Hawaiian-born Japanese, he asserted, is to exert every effort to promote friendly relations, not only between their own peoples and Americans but among all races on the Pacific.

It is a noteworthy fact that practically all officials of government, educators, lecturers, etc., coming from Japan to Hawaii urge loyalty to the culture and traditions of their fathers as a primary duty of the second-generation Japanese. It is all apparently a part of a concerted and determined effort on the part of the Japanese Government to maintain and exercise a hold on the future American citizens, whose numbers are so great that they will undoubtedly wield a powerful if not a controlling influence on the politics of the local community in the near future.

MIGRATION OF STUDENTS

In an address on "An Adventure in Education," Dr. Stephen P. Duggan, director of the International Institute of Education, voiced the opinion that one of the most important factors in the establishment of better international relations and the promotion of a better understanding of the problems facing different countries is the migration of students from one country to another.

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There are now, he said, more than 10,000 foreign students in the United States. Of these, about 2,500 are Chinese, 1,000 Japanese, 100 Filipinos, and 50 Hindus. These students are scattered in universities and colleges throughout the country.

Of all classes of foreign students it is found that those from the oriental countries encounter the greatest hardships. Lack of adequate preparation, difficulties of language, and the fact that scientific education in the Pacific countries has not reached the high standard demanded by American colleges mitigates against them.

Oriental students coming to America without sufficient funds, expecting to work their way through college, also encounter great hardships, as they are unable to compete with the American students who are also obtaining their education in this manner.

Another advance toward the creation of a more cordial and sympathetic relationship between nations is effected by inviting foreign professors to make visiting circuits of American universities and by the establishment of international relations courses.

SECRECY OF THE PROCEEDINGS

Though preceded by a long publicity campaign, in which the press played no small part, when the second session of the Institute of Pacific Relations convened, the press and public were completely barred from all round-table discussions.

The reason given for the secrecy was that it was the desire of the oriental delegates, who felt uncertain of their English and feared that their utterances might be misconstrued; but it was rumored that the British delegates also favored the closed sessions.

The newspapers, in editorial comment, complained bitterly of the secrecy and the carefully censored reports given out by the press committee. While it is true that many questions were discussed in the forums, these "discussions" were in the main merely lectures. Very little of the actual deliberation of the institute which took place at the round tables ever reached the public.

There is little doubt that the purposes of the advance publicity campaign were to some extent defeated by this policy of secrecy. An editorial in Honolulu Advertiser expresses in brief the concensus of opinion of all the other papers in the city. This editorial says in part: "Now comes the institute itself, and a pall of secrecy and mystery, a sort of intellectual smoke screen, is thrown around the proceedings—for fear of what—may we ask? That journalism may misinterpret? That here strong meat is set forth not fit for babes? That rare pearls are here set before swine? If these are the thoughts, then why the institute?

In short the policy of secrecy only served to place the whole proceedings in the rather futile and ludicrous light of a group of pedagogues, religious leaders, and pacifists attempting to settle world problems after the manner of statesmen. It is difficult to see just what they could hope to accomplish, without official standing as they were, except through the medium of publicity.

The more influential members of the institute evidently saw it in the same light, for it was decided at the close of the conference to eliminate to a great extent the policy of secrecy at the future sessions.

NEW CONSTITUTION ADOPTED

A permanent organization and a new constitution were effected at this session of the institute.

Membership is now on the basis of the national unit, though separate racial units within a country may, with the assent of such a country, have a representation at the conferences. This clause allows Korea and Philippine Islands to be represented as members.

Expenses of the institute are to be met by an international budget, contributed by all national councils and other sources but in such a manner that the international character of the organization is preserved.

The central headquarters where the office of the secretariat is located is to remain in Honolulu.

Dr. Ray Lyman Wilbur was reelected chairman of the institute. The secretariat, consisting of J. Merle Davis, Charles F. Loomis, and J. B. Condcliffe, was also reelected.

The next conference will probably be held either in New Zealand or in Japan. New Zealand has asked for it; but Japan also desires it, though she feels that the standard of hospitality set by Hawaii can not be met.

A BRIEF REVIEW

The second session of the Institute of Pacific Relations was marked by the features that seem inseparable from such endeavors.

The delegates took themselves as seriously as they took their self-appointed task. The agenda was of such magnitude that everybody was driven at top speed all the time, and it was necessary to listen to and read so much that mental exhaustion was the inevitable result.

A social program filled every leisure hour to overflowing and prevented rest and relaxation.

The most criticized feature was the secrecy maintained. The local press was very much put out on this account and inveighed against it editorially.

While it is true that a large group of well-informed, keenly interested people enjoyed the opportunity to exchange opinions, overcome prejudices and correct erroneous ideas, it seems certain that advantage was taken of the occasion to engage in clever and insidious propaganda based upon the presentation of data in a manner at least disingenous.

The outstanding features of the institute proceedings were the discussions of the Chinese question, and the immigration question with the tilt between Suzuki and Scharrenberg over the matter of Japanese immigration.

While Doctor Sawayanagi's age commanded respect, Yusuke Tsurumi was easily the outstanding figure of the Japanese delegation.

Another matter worthy of comment was Miss Kim's plea for Korean independence.

It was also interesting to observe that the Chinese members manifested rather a confiding attitude toward the Americans, while their attitude toward the British and Japanese members betrayed a certain reticence indicative of an underlying distrust.

Eggleston's suggestion for dismantling Pacific fortifications, advanced, he said, solely for the purpose of obtaining reactions, failed to elicit any comment whatsoever.

Sir Frederick Whyte, who headed the British delegation, was of a caliber far above the average of the membership of the institute.

The fact that the League of Nations sent three observers to the institute is also worthy of note.

Though similar in some respects, this conference differed from the Williamstown conferences in that the Williamstown Institute of Politics is more of a school, where delegates are chosen only after they have demonstrated that they are experts in various lines. There are also fewer secret round table discussions at Williamstown.

NOTE. For another report and viewpoint on the Institute of Pacific Relations, the reader is referred to an article in the October number of Current History, by Prof. George H. Blakeslee, entitled "Results of Honolulu Conference on Problems of the Pacific."

Running almost concurrently this last summer with the Honolulu Conference was the Williamstown Institute of Politics. These conferences were each discussing two common topics, namely, China and the Philippines, and it might be of interest to give here the views expressed at the Williamstown conference on these subjects.

The leader of the Chinese "round table" was Prof. H. S. Quigley, University of Minnesota, formerly of Tsing-Hua College, Peking, and the principal members of this group were Dr. Stanley K. Hornbeck (formerly stationed in China in the Foreign Service, at present at Harvard University, attended both Honolulu and Williamstown conferences), and Mr. Thomas Millard (former newspaper publisher and correspondent for the New York Times in China). Mr. Millard was very vitriolic in his attack on recent United States policy in China and was particularly bitter against the staff of the American Legation in Peking

and the Consulate General at Shanghai. Doctor Hornbeck presented a very rational view of the Chinese situation and of the precepts which should guide our actions, realizing that we should renounce various unilateral privileges, but maintaining that until conditions in China are stable or at least until China has a central government with whom we can negotiate, we can do nothing more than assure the Chinese of our friendship and good wishes. Professor Quigley urged a cancellation of our unilateral privileges at the earliest possible moment, maintained that we should follow an independent policy in China, but recognized the difficulty of dealing with China until that country has a government worthy of the name.

The general feeling among the members of the institute favored the course advocated by Doctor Quigley. A few were enthusiastic over Mr. Millard's accusations and proposals and apparently none were in favor of an absolute continuation of our present privileges in China.

The Philippine "round table" was led by Prof. Ralston Hayden, of the University of Michigan, and the most prominent members were Mr. W. Cameron Forbes (former Governor General of the Philippines), Mr. Vincent Villamin (lawyer of New York and a lecturer on Philippine matters), and Mr. V. G. Bunuanm (director of the Philippine press bureau, Washington).

The latter speaker desired nothing less than immediate independence for the Philippines, conceding, however, that the United States would have to extend its protection even after independence. He considered that the Philippines would only require a very slight amount of such protection, and that in every other way they were ready for complete independence. He made a gesture of cooperation by magnanimously stating that the Filipinos would be willing to have a nonpolitical and noncommercial commission investigate the entire question.

Mr. Villamin (also a Filipino) ridiculed Mr. Bunuanm's arguments, stating that the Philippines were defenseless and in no way prepared for independence, that a conference as recommended would be useless, and that the Philippines should concentrate on education instead of agitation. He believed that the Philippines if left to themselves would soon be absorbed by other oriental nations. He did believe, however, in eventual independence. Governor Forbes believed, as did Mr. Villamin, that the Filipinos were not ready for independence and that they should first learn to cooperate among themselves and gain rudimentary experience in government.

Professor Hayden took a middle course, believing that the Philippines should have an extension of self-government looking toward complete independence at a definite date. He favored Mr. Bunuanm's suggestion for a conference to discuss the entire question.

There was only one thing that the members of the Institute were generally agreed upon in this matter, and that was that eventually the Philippines should have independence. A large group was in favor of a conference as suggested above, and the setting of a definite time for the granting of independence. As usual, there was also a group favoring immediate independence but still wishing to bind the United States to defend the islands. These latter were, however, in a small minority.—ED.

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OFFICE OF NAVAL INTELLIGENCE
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[illegible]	Initials	Date received	Date forwarded
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Executive Officer			
Gunnery Officer			
Navigating Officer			
First Lieutenant			
Engineer Officer			
Asst. E. C. Officer			
Communication Officer			
Medical Officer			
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First Division Officer			
Second Division Officer			
Third Division Officer			
Fourth Division Officer			
Fifth Division Officer			
Sixth Division Officer			
Marine Officer			
"V" Division Officer			
"A" Division Officer			
"B" Division Officer			
"E" Division Officer			
"M" Division Officer			
"N" Division Officer			
"R" Division Officer			
Radio Officer			

The material for the BULLETIN is largely derived from service sources and its interest and value are correspondingly dependent upon the number and character of the reports received by the Office of Naval Intelligence from our own officers. In this connection the observations of officers afloat are of great value, particularly if the reports rendered are drawn up in accordance with existing intelligence instructions.

While political and economic information is undoubtedly of much use, the collection of military information should come first in the intelligence work of cruising ships.

NOTICE

The contents of this number of the BULLETIN are based upon information received in the Office of Naval Intelligence between September 25 and October 25, inclusive.

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CONFIDENTIAL

O. N. I. MONTHLY INFORMATION BULLETIN

VOL. X NOVEMBER, 1927 No. 5

ARGENTINA

A. NAVAL

1. Cruise of "Belgrano" to Genoa.

The cruiser *Belgrano* left Bahia Blanca in September for Genoa, where, together with the training ship *Sarmiento*, she represented the Argentine Navy at the unveiling of a monument in Genoa to Gen. Manueal Belgrano. The unveiling took place on October 12, at which time the Minister of Foreign Affairs, Doctor Gallardo, was in Genoa to represent the Argentine Government.

The *Belgrano* took over officers and crews for the destroyers purchased by Argentina in Spain. She stopped at the Canary Islands en route.

The two destroyers, which have been renamed the *Cervantes* and the *Garay*, are due to arrive in Mar del Plata, Argentina, in February.

The complement of these boats is fixed at 125 each.

NOTE.—"Belgrano" and the "Sarmiento" are obsolete ships built in the last century. The two leaders, purchased from Spain, are modern of 1,650 tons, formerly named the "Churruca" and the "Alcala Galiano." They are a part of the rather extensive modernization program of Argentina authorized last winter, and which in addition, includes 3 cruisers (to be built in Italy), 4 destroyers (to be built in England), 6 submarines (to be built in Italy or France), and miscellaneous craft. No contracts were let to United States firms.—ED.

B. MISCELLANEOUS

1. Combat estimate.

[*Source: M. I. D.*]

Argentina has no disputes of sufficient moment to draw her into a foreign war. Argentina and Brazil are not in accord and regard each other with distrust and jealousy, as both aspire to be leaders in South American affairs. Both desire to extend their influence in

Paraguay and Uruguay, but neither seems inclined to press this matter to the point of a serious quarrel. The relations of Chile and Argentina are very much the same and for the same reasons. Inasmuch as only the men of the permanent army receive any instruction, and of these there are annually about 20,000 passing to the reserve, it must be seen that the system does not give a highly trained army as a whole. The permanent army is well instructed, but the personnel deteriorates after passing to the reserve.

Material is deficient, old, and antiquated, which detracts much from the efficiency of national defense, considering present-day standards.

In the event of war, Argentina must keep her ports open and her communications with foreign countries assured in order to obtain munitions and military supplies generally. Unless she can obtain essential raw materials, coal, iron, etc., her own manufacture of military supplies fails as soon as her reserve supplies are exhausted and she would be in desperate straits to continue a war. Moreover, as a great part of her arms, armament, and munitions are of German (Krupp) manufacture, there remains no source of supply for replenishing them; that is, if Germany is complying with the terms of the Versailles treaty, both directly and indirectly. It is only because her neighbors in South America, her most probable adversaries, are very little, if any, better off in the above respects that Argentina could engage in a major war with any reasonable prospect of success. With a country possessing a modern navy, her case would be hopeless from the start.

The training of the navy is excellent as far as facilities will allow. The efficiency of the ships suffers from conscription with its constant withdrawal of men, and from the obligation of a large percentage of the officers' time in repeating elementary training.

NOTE.—It is to be noted that last winter Argentina authorized her extensive building program. This immediately had a reaction throughout South America, principally in Chile and Brazil. It might not be farfetched to see in these projects, together with the existing commercial rivalry, an embryonic struggle for South American hegemony. See following article, under Chile.—ED.

CHILE

A. NAVAL

1. New destroyers.

[*Source: Chilean Press*]

The following data is given with reference to the six new Chilean destroyers being built in England at the present time by Thornycroft & Co.

They will have a length between perpendiculars of 288 feet 3 inches and an over-all length of 300 feet. The vessels will be intermediate in size between the British "S" and "V" classes.

The armament, to be supplied by Vickers & Co., will include three 4.7-inch guns.

The designed speed of the new vessels is 35 knots. This is, however, only a paper speed, and Thornycroft-built destroyers usually exceed their guaranteed speeds.

The new vessels will have an exceptional radius of action and embody the latest improvements in their propelling machinery. The turbines will be geared, and this, in conjunction with Thornycroft boilers, will result in a very small machinery space. As a consequence, the space available for the accommodation of officers and crew will be considerably greater than in the earlier destroyers built in Chile, which were about 30 feet longer.

The scantlings of the new vessels have been based on British Admiralty standards—this means that the hulls will be considerably stronger than Italian or United States standards and appropriate for the "iron-bound" Chilean coast, which has a minimum of harbors and a maximum of rocks and reefs.

NOTE.—The above boats are to be of 1,320 tons. They are somewhat of an "answer" to the Argentine program outlined in the article under "Argentina." As in the case of Argentina, no bids on these boats were asked for or received from the United States.—ED.

FRANCE

A. NAVAL

1. French Cruiser "Lamotte Picquet."

The *Lamotte Picquet* was recently visited and inspected.

There is considerable woodwork in the ship; one feature being noted was that the furniture had wooden outlines with metal panelling. The ship control is handled entirely from a steel conning tower, which has about 1½ inches thickness. Nothing unusual was observed in the conning tower except the large number of telephone receivers and transmitters which ran to different parts of the ship.

Forward of the conning tower and running around it was a narrow passageway covered by metal with windows The admiral and commanding officer both stated that they considered the ship an excellent sea boat, but had had no experience whatever in a heavy sea. The commanding officer also stated that in his opinion she would roll quite heavily in a quartering sea.

The galleys, five in number, one for the crew in general, one for chief petty officers, one for warrant officers, one for the captain and other officers, and one for the admiral, were fairly clean and well kept. The ship seemed free from rust.

The admiral's cabin is in the deck house immediately forward of the two after turrets and is quite elaborately furnished, the inside being panelled with tapestry. The furniture is of wood.

This ship is not the regular flag-ship. The chief of staff of the admiral stated that this ship and the other ships of this type which formed the division had not been together for some time. The ship displaces practically 10,000 tons and is naturally overdraft. While built for 34½ knots, she has never been able to make this speed in her present condition. In maneuvering the ship in close waters it was stated that the two outboard screws only were used. The ship has not been completed and upon her return to France will receive the omitted installations.

The *Lamotte Picquet* is fitted for the carrying of two airplanes, but only one, a monoplane of the small scouting type, is on board. There is no launching catapult installed.

The ship has four radio rooms. The main radio room has the same sized equipment as is used by French shore stations, and it was stated that when free of land they had no difficulty in communicating at distances of about 10,000 miles. The main radio room has four receivers. There were eight operators on board. The secondary radio room for maneuvering and fairly long distance communication, with two receivers, is under and abaft the bridge. The third radio room, which is practically the same as the second, is in a deck house about amidships. The fourth station, similar to the second and third, is aft. This vessel carries four main antennae. In addition it was noted that there were two cylindrical types of auxiliary antenna forward. All antennae seemed to be well insulated and the communication officer stated that no difficulty had been experienced with broken-down insulation. No radio compass or radio direction finder is yet installed. The officer and enlisted personnel seemed to be well pleased with the installation.

The signal bridge is on a level with the conning tower and has a small signal searchlight on each wing in addition to the triple type blinkers. On the foremast, beneath the fire-control observation station, is installed a searchlight which is about 4 feet in diameter and is controlled electrically both in azimuth and in elevation from a control station directly underneath the searchlight. This searchlight can apparently be used for signaling. Dependence is placed on flag hoists for all maneuvering, radio being used infrequently.

The ordnance material on this vessel seemed rugged and reliable and is kept in a remarkably clean and good-appearing condition, with no rust visible. From conversation with the turret captain and an officer on board, the personnel seemed to have a very high opinion of the material aboard.

There is no side armor on this ship.

There are no depth charges on board nor any depth charge tracks or throwers, although it was stated that they were to be installed.

Fire-control director, when received, is to be installed in the fire-control station on the foremast. Fire-control party was not organized. The plotting room was not visited.

No provision has been made for the use of gas, in any way, no gas shells being aboard; nor were there any gas masks.

An opportunity was given to go into the turret to observe the working of the turret guns. These guns are elevated electrically and by hand, and are easily operated. Extreme range with 40 degrees elevation was stated to be 29,500 yards, although they had not actually fired anything like the extreme range. The guns are cross-connected for elevation and can be fired together from either side. The sights are of the yoke type with good telescopes and are cross connected. The trainer's sight consists of a small telescope which is operated vertically by hand. The guns are elevated electrically, having an elevation arc attached to the sleeve of the gun. The breech mechanism opens upward, is quite heavy, but is so well balanced that it is easily operated. It has a positive lock when open. As soon as the plug starts to turn, two jets of air and two jets of water are automatically started for clearing the bore. The air can be received either from air flasks in the turret or direct from torpedo accumulators. A water tank with a supply of water is attached outboard on each gun mount. The firing locks were not on, but the guns are fired electrically as well as by hand and it was stated that the firing lock was not fully armed until the breech was absolutely closed. The starting panel for gun-elevating motors was a ponderous affair secured outboard at the top of the gun mount. There seemed to be a control motor with the same action as our Waterbury control motor for elevating guns and training of turrets. The shell observed in the turret, which was a drill shell, was an extremely long nosed one. The powder charge is in two bags. Each gun has its own hoist, which is outboard and just aft of the gun pointer. The shell is brought up and dumped inboard on a hand carrier which is hauled aft on a track and a shell from the carrier is then pushed on to the loading tray. The shell is rammed home by a mechanical rammer, which is secured directly to

and is part of the sleeve. It is an arm which is thrown back by the recoil of the gun and can then be thrown to the rear of the shell. The powder comes up on the same hoist with the shell on an endless chain arrangement and is dumped outboard on a tray, from where it is passed by hand to the loader. There are nine men in each gun crew in addition to the turret officer and the turret captain. The turret officer's position is in the rear of the turret on a raised platform where he can observe the firing of the guns and also look out over the turret through peep holes in a circular hood. The turret is quite roomy.

The turrets are about 1½-inch steel, being little more than shields, not gas tight. The openings for the sights are about 10 by 4 inches. There is a shield attached to the gun sleeve which, when the gun is elevated, keeps the port closed. This shield fits very close to the front plate of the turret. The turret turns easily by hand. There are a number of steel billets secured immediately under the officer's platform, apparently for counterbalancing. The turret is trained electrically, usually at about half speed, at which rate it took about five seconds to train it through an arc of about 45 degrees.

This ship has four antiaircraft guns mounted as shown in *Jane*. They have not carried on any advance forms of antiaircraft target practice and apparently they are in a very backwrd state in general in the use of antiaircraft guns.

There were no listening devices installed, nor did the officers know of the intended installation of any.

This ship carried four paravenes, two being forward and two about amidships. The officer stated that they considered it necessary to stream four paravenes due to the length of the ship.

On the port wing of the open bridge is installed a 3-meter Barr and Stroud range finder. On each side outboard and forward of the forward torpedo tubes was a range finder of French make, inclosed in an armored tower which was operated electrically. It was stated that they had intended later to install one of this type of range finder in the fire-control top. The length of these range finders appeared to be 10 feet. Access to the tower was not granted.

Star shells have been used with good results in illumination. They are fired from the antiaircraft guns.

This ship carries 21-inch torpedoes. In addition to the 12 carried in tubes, they have 12 more carried in groups of three in two lockers on each side inboard between the forward and after nests of tubes. Outboard of this are war-head lockers, and a full complement of war heads are carried for torpedoes on board. The torpedoes make 36 knots, with a range of 18,000 yards.

The torpedo tubes are trained electrically by a motor installed on the deck directly underneath the tubes. The tubes can, in addition, be trained by hand. There is no torpedo director installed, but it was stated that torpedoes could be fired from the forward station where the director will be installed. The torpedo gunner's mate, who fires the torpedo, is seated alongside of what is the inner tube on the starboard side when the tubes are trained in. In front of him are installed three electric indicators for transmission of orders from the torpedo fire-control station. There is a bracket for the mounting of a telescope and the firing mechanism of the tubes. Torpedoes are fired either by air or by a powder charge. The tubes seem well balanced and easily trained.

There are three engine rooms on this ship, one for each outboard shaft and one for the two middle shafts. Main turbines are Parson. On each shaft there is a high pressure, low pressure, and cruising turbine. The arrangement on the outboard shaft is: High pressure outboard, low pressure ahead of and inboard of high pressure, and cruising turbine aft and inboard of the high pressure. All are geared. Condensers are installed beneath the main turbines. Ejector pump and lubricating oil-circulating pump in each engine room are driven by the same auxiliary turbine. The engine rooms are roomy and well arranged.

NOTE.—*The "Lamotte Picquet" is one of three cruisers completed in 1925–26. In addition, France is building four 10,000-ton cruisers. Since commissioning these completed cruisers have been extensively engaged in flag-showing cruisers.*—ED.

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2. French flotilla leader "Jaguar."

The above leader was recently visited and inspected. The complement of this ship is 9 officers and 209 men. Living quarters for the crew are forward and for the officers aft. The officers' quarters are spacious and kept in quite a clean condition. The crew sleep in hammocks slung overhead in the living compartments which are lashed and stowed in nettings outboard. The nettings are on top of permanent metal lockers similar to lockers found in our destroyers, each member of the crew having his own locker for storage of clothes. The messing is on portable wooden tables. The engineers and deck force live together in the same compartments. The crew seemed contented, and I was much impressed by their youthfulness and good physique, the age of the majority of them being 19 to 21 years. Some of the leading petty officers in the deck force, I was told, were 25 years old.

The appearance of the crew in regard to cleanliness was good. The executive officer showed a surprising knowledge of the ship in general and also of the engineering department.

The ship has separate galleys in the deck house for the officers and crew. There is also a bakery on board.

The staterooms of the officers are large and well furnished, but wooden furniture is used. There seemed to be a general use made of wood furnishing in the officers' living spaces. The commanding officer is a full captain, Captain Pontevez, ex-naval attaché in London. He seemed to be quite alert and quite familiar with his duties. In addition to the officers' quarters aft, there are beneath the navigating bridge separate permanent quarters for the navigating officer and the medical officer. Leading from, and directly abaft the navigating bridge is an emergency cabin for the commanding officer, about the size of the commanding officer's regular cabin on our destroyers.

On the opposite and port side is the chart house. Under the bridge and abaft the navigator's quarters is the plotting room. The navigating bridge is large, and inclosed forward and on the sides by glass windows. There is nothing unusual about the bridge, there being merely the engine-room telegraph, revolution counters, and instruments pertaining to navigating on the bridge. The type of gyro compass used is an Anschutz, which, I was informed, they considered absolutely reliable and spoke of its simplicity as compared with the Sperry compass. They have the usual repeater at the steering wheel and one on each wing of the bridge. The magnetic compasses, especially the one on the bridge, which had a bubble in it, showed a lack of attention and that entire dependence was placed in the gyro compass. The steering engine is located in a compartment in the stern and is a steam engine controlled by a telemotor. No trouble has been experienced with this installation.

There is an electric winch used for hoisting the boats, boats being carried in skids abreast of No. 1 smokestack. Boat booms, though quite rigid, are like the rest of the vessel's fittings, lightly constructed so as to eliminate all possible excess weights. A small winch is installed amidships about 20 feet from the stern for the purpose of handling lines.

The organization, as stated by the executive officer, is a flotilla leader with three divisions. Apparently this leader has not been with its flotilla in many exercises. Flotillas have been exercised in smoke-screen tactics, but no attacks have been carried out under smoke screen. It was apparent from the conversation that they were in a

very backward state in regard to the use of smoke in different exercises.

The main radio room, which is about 10 feet square, is located just aft and below the navigating bridge. The ship carries seven qualified operators. In the main radio room there are installed four receivers. The personnel stated that they operated on wave lengths of from 15 to 100. The installation appeared very good and well-kept and simple. The range, under favorable conditions is, for sending, 3,000 miles, and for receiving, 8,000 to 10,000 miles. Under favorable conditions they were able to hear their ships on the China station from the South American coast. There is an auxiliary radio station on the starboard side and forward in the after deck house. This station has two receivers which operate similarly to those in the main station, and also a small sending set. There are four aerials running from the fore to the main truck. These aerials consist of two sets of four single wires installed vertically on spreaders, the sets about 10 feet apart. The insulation looked good, but as the insulators were quite high, it was impossible to examine them, and the material used was unknown to the executive officer and the radio personnel. No attempt has been made to maneuver flotillas by radio.

There is no radiocompass installed, but it was stated that they expected to have one installed on the port side immediately aft of the after deck house with the compass room in a compartment on the deck below. It was stated that the ships on which radiocompasses have been installed have found them quite accurate and useful. There is at present no method of direction finding.

Visual signals used: Flags, flag hoists, blinker, and a three vertical light blinker on each side of the bridge. In addition, there is a small signal searchlight on each open wing of the navigating bridge. On the upper bridge, on each wing, is a main searchlight with reflector about 24 inches in diameter, fitted with shutters for signaling. It was stated that these searchlights are quite powerful.

The guns appear rugged and the equipment reliable. They were clean and free from rust. The personnel seemed quite satisfied with the installation and with the material. The gun shields are of light sheet metal.

The ship did not have her allowance of depth charges, nor did the officer know the number that were to be carried, but stated that upon receipt of depth charges, they would be carried aft on deck.

The ship is fitted with two depth-charge carriers, one on each side, aft, under the deck, which consist of an endless chain installation with fingers on the chain to hold the depth charges. The discharge is through ports in the stern of the ship on to a double pipe-line guide

on each side. The loading end of the carrier opens on deck, a hinged water tight hatch covering the opening. In addition to the two tracks aft there are two Thornycroft throwers on each side, well outboard and about abreast of No. 2 stack. From the general appearance of the throwers and tracks, the depth charges appeared to be about 18 inches in diameter.

It was stated that the control of fire was done on the upper bridge forward. Voice tubes are paralleled by telephone. The mouthpieces on all voice tubes have a perforated metal covering apparently with some substance underneath it of which the executive officer knew nothing, but stated that the tubes, especially those leading to the magazines, had this insulation for the prevention of gas being carried through the ship and flame of any sort passing through the tubes. He stated that the disk did not interfere in any way with communication.

The fire-control director was a very simple affair, operated electrically and installed on a stand on the upper bridge. It consisted of a graduated plate upon which there was a mount for a telescope. The plate turned only in azimuth, but the telescope could be moved vertically with the roll of the ship. Contact during the turning in azimuth of the plate of the director operated an instrument on the guns, which gave the bearing of the target in increments of three minutes of arc. For the pointer, who also did the firing, there was an instrument which had on its face elevation in degrees and minutes. There was nothing visible to show how this instrument was operated.

The main battery guns seem quite easily operated. At the breech of the gun is attached a loading tray which is operated by hand and travels on a horizontal shaft. This tray is carried vertically secured to the breech of the gun until the plug is opened, when it is moved to the rear of the screw box and dropped in. The guns appear to be about 40 calibers in length; the breech mechanisms opened horizontally and to the left. The firing can be done either electrically or by percussion. The guns are elevated and trained by hand. The ammunition is brought from the magazine on an endless-chain hoist, one hoist on each side and from the hoist the ammunition is placed on a trough for the forward guns, shoved forward by hand to an opening in the bulkhead for the lower forward gun; for the upper forward guns the ammunition is brought up to the deck in hoists abaft the gun. All ammunition for the main battery is provided by electric hoists, which can also be operated by hand. Each magazine has forced flooding. The main battery guns can be elevated to 45°.

Antiaircraft guns are without shields of any sort and easily operated. The breech mechanism of these guns is a drop plug with

a double-ejector device, upper part gripping the upper half, the lower gripping the lower half of the shell case.

Gun mounts are very rugged. It was stated that in firing the guns they had had no trouble structurally. The pedestal was cylindrical, similar to our secondary gun mounts.

No listening devices have been installed on this ship.

The ship carries paravenes similar to those in use in our service.

But one range finder was in evidence, and that was a 3-meter Barr & Stroud mounted on the upper bridge.

Sights for the antiaircraft guns are yoke type and very rugged. The telescopes are about 4 inches in length, with practically no magnification. The telescopes for the main-battery guns were not seen.

Smoke bombs are contained in cylindrical sheet-metal containers, which stand about 18 inches high and are about 8 inches in diameter. These are kept in racks amidships. There is also a fixed smoke device which apparently contains the same substance as in the cylindrical containers and is installed just aft the No. 2 stack amidships.

The executive officer stated that they had no star shells on board.

The *Jaguar* carries her full allowance of torpedoes and war heads. War heads contain 530 pounds of high explosive. Torpedoes make 36 knots and have a range of approximately 18,000 yards. This vessel has not fired torpedoes, but the officer stated that their method of firing was to fire two together, one from each triple tube and the interval between the firings, one second. The torpedoes are fired at a target towed by another vessel, the distance between the leading floating target and the rear one being about twice the length of a battleship. They endeavor to fire torpedoes at about 11,000 yards with the speed of the firing ship about 30 knots or better. It was stated that they could fire with the tubes trained at any angle from forward aft; that the torpedoes would clear the ship; and that, while they observed that this type of torpedo would roll on striking the water, it soon righted itself and made excellent runs.

Triple torpedo tubes, mounted amidships, are individually controlled. There was no sign of any instrument on the tubes, nor was there any torpedo director. The order for the setting of torpedoes and the training of the tubes in azimuth is given over a telephone circuit.

Firerooms are well arranged and have plenty of room. The air casings of the boilers are connected to forced-draft blowers, which are driven by Rateau turbines. There are nine burners to each boiler, five being used up to a speed of 19 knots. The fireroom is particularly clean, no evidence of oil leaks, and apparently everything is

well taken care of. The oil can be automatically cut off from all boilers, either from the firerooms or weather decks.

The feed pumps, two in number in each fireroom, are turbine driven. Fuel pumps and circulating pumps and bilge pump are all reciprocating. In a deck house on the starboard side, aft of the bake-shop, are two auxiliary generators, gasoline driven.

The engine room is crowded. Cruising turbines, which are aft of the main turbines and reduction gears, are outboard of the shafts. The gear ratio of the main turbine is 10 to 1. The cruising turbines are used for speed up to 19 knots and have double reduction gears. The shaft speed, full power, is 310 revolutions. The oil consumption at full speed is reported to be 1.04 pounds per S. H. P. hour. There are two turbine-driven circulating pumps on each condenser.

NOTE.—*The "Jaguar" is of 2,360 tons, mounts five 5.1-inch guns, six 21-inch torpedo tubes, has a speed of 35.5 knots, and is one of four such vessels completed this year. None other are building.*—ED.

B. AERONAUTICAL

1. Visit to Lorraine-Dietrich factory.

A visit has been paid to the factory of the Lorraine-Dietrich Co. at Argenteuil. This factory is now almost entirely given over to the manufacture of aviation engines. The once considerable output of motor cars has dwindled to two per day, and the company appears to be following the footsteps of the Napier Co., which has entirely ceased making motor cars.

The present aviation-engine production of the Lorraine-Dietrich Co. is five per day, and the number of workmen employed on the work is 3,000. At one time since the war the Lorraine Co. produced 20 engines per day with 4,500 workmen.

About four-fifths of the engines produced are of the 450-horsepower 12-cylinder W type, both geared and ungeared. The company, however, is getting into production on the 18-cylinder 650-horsepower W type engine, likewise produced in geared and ungeared form.

Among the experimental types is a series of radial air-cooled engines strongly influenced by the design of the Armstrong-Siddeley *Lynx* and *Jaguar*, but not built under license.

The new air-cooled models shown at the last aviation salon were the type 47, 200-horsepower, 7-cylinder, and type 42, 450-horsepower, 14-cylinder engines. The 200-horsepower engine (which gives 250 horsepower at 1,700 revolutions per minute) has just successfully

completed the 50-hour Government test, and the 450-horsepower (developing 480 horsepower at 1,800 revolutions per minute) is about to be subjected to this test.

The Lorraine Co. has also produced a five-cylinder radial air-cooled engine rated at 100 horsepower, but delivering 135 horsepower at 1,550 revolutions per minute. This engine has cylinders 125 by 140 milimeters bore and stroke.

In the near future there will be produced a nine-cylinder radial engine rated at 300 horsepower. The air-cooled engines have at the present time one-piece crank shafts, but the company intends to follow the lead of the Bristol Co. and use built-up crank shafts and single-piece master connecting rods to permit higher revolutions per minute.

The cylinders of the air-cooled engines are of steel, with integral fins. The cylinders are screwed and shrunk into the finned aluminum heads. These heads are rather complicated castings, with arrangements of fins permitting good cooling.

The 450-horsepower W-type water-cooled engine is fitted with a planetary reduction gear, which adds only 70 pounds to the weight.

The 650-horsepower 18-cylinder W-type engine is being made not only for France but also for Germany and Japan. Unlike many engines, the lower half of the crank case of the Lorraine engine is a strength member and not merely a pan. However, I was shown an inverted 650-horsepower engine now being built, in which (in this case) the upper half of the crank case was of very light construction. Magnesium has been tried and abandoned for crank cases, and these are aluminum castings.

Upon completion all Lorraine engines are first run in by being driven electrically for 10 hours at about 600 revolutions per minute. Each engine is then tested for 4 hours (3 hours and 20 minutes at nine-tenths power and 40 minutes at full power). One out of every one hundred production engines is tested for 50 hours. The testing installation includes 30 beds. In the past the exhaust was carried directly to the open air, but the installation is now being changed at great expense, so that the exhaust gases are water-cooled. There are three or four special test beds for air-cooled engines, two of which have blowers to simulate flight conditions.

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2. *Government engine tests.*

Engine tests until recently were regulated by the "General Acceptance Conditions for Bench Tests of Service Engines," approved May 24, 1921. These conditions have been modified in various ways to be

in concordance with the conditions of the International Commission of Air Navigation.

Definitions.—Rated power: Mean power furnished by the engine during tests of one hour, as specified below (brought to 15° C. and 760 millimeters of mercury), corrected for the margin between the mean revolutions per minute during the test and the rated revolutions per minute (the revolutions per minute fixed arbitrarily by the contractor and limited only by the resistance of the propeller).

Equivalent power: Some engines are able by a special arrangement to keep their rated power at the rated revolutions per minute up to an altitude z; others give their rated power at the ground level at full throttle, after which this power decreases with altitude. The equivalent power of an engine of the first category is equal to the rated power of an engine of the second category, which is equivalent to this engine at an altitude z.

Nature of tests.—Prototype engines: Preliminary tests throttled down and acceleration tests at an angle of 15°; safety tests of the carburetor; determination of power and utilization curves. Test of one hour at the rated power and at the rated revolutions per minute; 50 hours in periods of 10 hours at nine-tenths of the rated power and at the rated revolutions per minute; one hour at the rated power and the rated revolutions per minute; and 30 minutes at 5 per cent more than the rated revolutions per minute. Operation test under thrust of 4.5 pounds per horsepower.

Mass-production engines.—Thirty minutes at rated power and at rated revolutions per minute; three hours at nine-tenths power. These tests are followed by dismounting the engine, examination, and a further test at various speeds for 30 minutes.

Test requirements.—Stoppage: Stoppage involves the cancellation of the interrupted test except in the case of the 10-hour test if the stoppage is not more than 15 minutes and does not take place in the first 5 hours. If one-half of the 10-hour test is canceled, the 50-hour test is canceled. A water or oil leak is considered equivalent to stoppage.

Repairs: No repairs are allowed during the run except those which could be made in flight. Between two tests, repairs on parts, other than listed vital parts, are authorized during the one hour following the end of one test and the two hours preceding the following test.

Damages.—Damages to accessories alone do not entail the cancellation of the endurance test, on condition that this damage does not occur twice to the same part or to identical parts during the 50-hour test.

GERMANY

A. AERONAUTICAL

1. Visit to airplane works.

The Junkers aircraft works in Dessau, Germany, was recently visited. At the time there were approximately 2,000 men employed in the aircraft and aircraft-engine works. A large number of aircraft noted under construction were primarily of types for use commercially by the Luft Hansa (German Airways Co.).

The new type, only two of which have been completed, namely G–31, is especially equipped for night commercial flying and therefore has installed quite comfortable-looking bunks.

The most impressive feature of the visit is the ease and rapidity with which the Junkers metal aircraft are constructed. Every part is made on a jig and great attention is paid to accessibility and ease of replacement of damaged parts.

New commercial types have baggage compartments below the passenger cabin. This together with the low monoplane wings of the Junkers aircraft give greater protection to passengers than the arrangement in most other commercial types.

The Dornier plant at Friedrichshafen and Altenrhein on Lake Constance has also been visited. It is estimated that approximately 1,000 men were employed in the Friedrichshafen plant. Twenty-odd aircraft were observed to be under construction, the great majority for use in the Luft Hansa. Two Dornier WALS were being constructed for Italian commercial aviation. The Altenrhein plant in Switzerland is just recently completed. This is a huge and quite modern factory capable of employing 600 men in the general construction room alone. One enormous hangar has been constructed to house the 100-passenger flying boat that Dornier is designing. It is expected that this boat will have 6,000 to 7,000 horsepower and a range of approximately 3,000 miles. It was not possible to see the plans or to get detailed information of this project.

The Dornier D. o. D. type, an all-metal design for either a landplane or twin-float seaplane, is extremely neat looking in design and has recently broken three weight altitude records as a seaplane. Ten of this type (landplane) are being built in Altenrhein for Yugoslavia. It can be used to carry either bombs or torpedoes.

GREAT BRITAIN

A. NAVAL

1. Fleet training.

During the week ending Saturday, October 1, 1927, the Atlantic Fleet carried out fleet exercises including target practice from Cromarty Firth. Representatives of the press were allowed to witness the exercises from vessels taking part and several of the leading papers have carried articles, which, though censored, give some idea of the scope of the exercises. The practice of permitting representatives of the press on board vessels of the fleet during these exercises is rather a new departure on the part of the Admiralty and is indicative of a concession to public opinion often expressed, that more should be given out in regard to the doings of the fleet, for the advancement of public interest.

Making due allowance for the source of these articles, attention is invited to the following points mentioned therein which are of interest:

(*a*) Both day and night firings were conducted with war conditions simulated, ships steaming at high speed and darkened at night.

(*b*) Indications that full-power trials are held in conjunction with gunnery exercises.

(*c*) General employment of smoke screens.

(*d*) "White sausage-like target" towed by airplane for antiaircraft gun practice by the battle cruisers. Target crossed each ship three times.

(*e*) Star shells fired from broadside guns of battleships and battle cruisers with no reference to use of antiaircraft guns for this purpose.

(*f*) Torpedoes fired at night by both capital ships and light forces; all recovered, one with head stove in. Light cruisers held torpedo practice against each other at a range of "nearly 10 miles." Torpedoes had "luminous" heads.

(*g*) About 20 torpedoes fired from *Revenge* and her line and one hit registered on *Renown*.

(*h*) Ships turned toward torpedoes in avoiding them. Torpedoes located by indicating flares as they came to the surface.

(*i*) At one form of night practice 6-pounder subcaliber mountings were used in turret guns.

(*j*) Reference to night exercise being cancelled on account of the weather, at which it was planned to fire entire armament. One night exercise between capital ships held at 6,000 yards.

(*k*) "Inclination exercises" were held with battleships firing at each other while inclined at an angle and on the same course. This evidently refers to firing at a high range, made possible by listing the ship.

(*l*) Used radio in fire-control work.

(*m*) During a secondary battery practice of the Third Battle Squadron (*Iron Duke*, *Benbow*, etc.): Range from 9,500 to over 10,000 yards; two runs, firing first port and then starboard guns, each battery firing 6 salvos, each gun, 4 rounds, total per ship, 48 rounds; both batteries straddled; ships fired individually; speed of firing ship, 14 knots; target anchored.

(*n*) Battle cruisers used cruisers as targets in offset firing. The former fired one gun (or four gun salvos?) at a time, with an interval of about 1 minute. Cruisers would alter course and speed in effort to escape the shell. Speed of battle cruisers, 25 knots.

(*o*) Searchlights were used by the battleships at night, after an original burst of star shells had disclosed target.

(*p*) Battleships held exercises simulating meeting of fleets in thick weather.

(*q*) Reference to the launching of aircraft by *Furious*: "The uninitiated were astonished to note that the planes were not dispatched from the top of her vast platform, but came swooping out from the shadowy spaces beneath like swallows from the caves of a hayloft." No reference to use of planes for spotting.

(*r*) Towed targets used for both day and night firings—speed of target about 10 knots, only about half as fast as that of the firing ships. Throw-off firing between opposing squadrons; directors offset 6°. The object to give experience at firing at an actual live target, etc.

(*s*) Battle cruisers opened fire with four-gun salvos and when hitting was established went to rapid fire with full salvos of eight guns each. Technically known as 15-inch full caliber concentration shoot.

(*t*) Each (of two) battle cruiser fired 6 rounds per gun. *Renown* recorded 13 straddles and 1 direct hit.

(*u*) Reference to the excellent shooting as reported by an experienced petty officer on the towing ship.

(*v*) Reference to ranges—some 10 miles away—"a decisive distance of about 17,000 yards. In about 30 seconds a shower of spurts showed the target had been straddled."

(*w*) Reference to policy of economy: before the war the fleet used to spend five days out of seven at sea; to-day it spends only two. Practice ammunition has been cut down by half.

The following extract from "The Navy" (October, 1927) is interesting in connection with and supporting information previously forwarded in regard to the high angles of elevation of 6-inch guns on *Nelson* and *Rodney* and 8-inch guns on new cruisers, and the assumption heretofore that antiaircraft use of these batteries must in consequence be contemplated under certain conditions:

DEFENSE AGAINST AIRCRAFT

The armament that is provided in the *Nelson* and *Rodney* and the new "County" cruisers for use against aircraft is a very interesting feature in the construction of these vessels and, although on paper the defense is limited when compared with new ships being built abroad, the outward appearance shows a very different state of affairs. The most conspicuous feature of the design of the new British ships is the extraordinary height of the gun ports which gives the 6-inch guns of the battleships and the 8-inch of the cruisers a huge angle of elevation. These guns could create a barrage on almost every point of bearing such as has never before been dreamed of at sea. During the late war guns of the same caliber were used with exceedingly good effect on the western front. They will make bomb-dropping awkward, but, of course, there still remains the airplane's rôle of scout and spotter, which is regarded as her principal one by the majority of naval officers.

NOTE.—See the "Bulletin" of May last for similar notes on exercises of the combined Atlantic and Mediterranean fleets.—Ed.

2. *Building program, British Empire.*

As of August 1, 1927

Type	Ships building[1]		Ships authorized and appropriated for year 1927–28		Ships authorized but not appropriated for—			
					Year 1928–29		Year 1929–30	
	Number	Tonnage	Number	Tonnage	Number	Tonnage	Number	Tonnage
Battleships, first line	1	[2]35,000						
Aircraft carriers, first line	2	37,200			1		1	
Light cruisers, first line	12	120,000	1	10,000	1	10,000	1	10,000
Light cruisers, first line	1	8,000	2	16,000	2	16,000	2	16,000
Mine layers, first line								
Destroyer leader, first line			1		1		1	
Destroyers, first line	2	2,540	8		8		8	
Submarines	8	12,070	6		6		5	
Fleet submarines, first line							1	
Gunboats	4	1,144			1			
Patrol vessels (100 tons minus)	(3)							
Auxiliary (mine sweeper)			[4]2					
Auxiliary, submarine tender	1	16,000(?)			1			
Auxiliary, repair ship	1	14,000(?)						
Auxiliary miscellaneous (net layer)							1	
Aircraft carrier, second line (Australian)	1	6,000						
Floating dock	1							

[1] Excludes *Nelson* (B. B.), *Berwick* (C. L.), *Adventure* (C. L.), *Oberon* (S. S.), completed this year; 6 submarines included at 1,545 tons each as improved *Oberons*.
[2] *Courageous* and *Glorious*.
[3] 4 motor launches 1926–27 canceled.
[4] Added 1927–28.

The naval estimates for 1927–28 make provision as follows for commencing the construction of the following, listed in table above:

	Amount voted
1 class A cruiser (10,000 tons)	£1,030
2 class B cruisers (8,000 tons)	8,484
	8,586
1 flotilla tender	9,976
8 destroyers	
8 destroyers	
6 submarines	11,191
2 mine sweepers	44,333
	83,600

Of the above, one of the two class B cruisers has been awarded to the Royal Dockyard, Portsmouth, and the other to the Royal Dockyard, Devonport; owing to the small amounts for these ships carried in the estimates, they will probably not be laid down until the end of the year. The balance of the program is to be built by contract, but awards have not yet been made so far as known. There is not much doubt that the whole program will be awarded in due course. If any construction is deferred, it might be expected to be the class A cruiser.

The status of the new construction program under way is as follows:

The *Nelson* has been completed and commissioned for service August 10, 1927, and will be assigned as flagship of the Atlantic Fleet. The *Rodney* is at present undergoing sea trials and is expected to complete in October, 1927. The five cruisers of the *Kent* class (10,000 tons) are expected to complete as follows: *Berwick*, completed; *Cornwall*, October, 1927; *Cumberland*, early in November, 1927; *Kent*, February, 1928; *Suffolk*, November, 1927. The two Australian cruisers as follows: *Australia*, February, 1928; *Canberra*, May, 1928. Three cruisers of the *London* class (10,000 tons) have not yet been launched; the first vessel of the group, the *London*, was launched in September, 1927.

The next three cruisers, 1926–27 program: The keel of the *Dorsetshire* has not been laid; the keel of the *Norfolk* has been laid but no further progress on the building slip. The *York* is well advanced in frame. The submarine depot ship *Medway* and repair ship *Resource* have not yet been laid down; the six submarines of 1926–27 program have not been launched, although these vessels are probably in frame. The *Oberon* is probably to be completed.

The *Oxley* and *Otway* are at present undergoing trials and will be completed shortly. The *Adventure* has been completed. The *Amazon* and *Ambuscade* have had additional trials understood to be due to defective packing in main steam piping, but are now completed for service. The four gunboats *Gannett*, *Peterel*, *Seamew*, and *Tern* are being erected in Hong Kong, and the first boat was ready for trial in September, balance to follow at a rate of about one per month. Four section of the floating dock for Singapore have been launched, it being understood that the remaining four are in the course of erection and will be launched in the next six months.

NOTE.—As far as is known, the results of late Three-Power limitation conference have had no effect upon the British building program—ED.

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3. *The machinery of H. M. S. "Nelson."*

[*Source: British press*]

Considering, first of all, the main propelling units, the two lines of propeller shafting are each driven by a complete set of turbines, through single-reduction gearing. At either side of the vessel there is one high-pressure and one low-pressure ahead-going turbine which work in series, while incorporated with the low-pressure turbine is an astern-going turbine.

Preference was given to the impulse type of turbine for this vessel. Both the high and low pressure turbines are constituted entirely of wheel stages and intervening diaphragms provided with guide vanes.

Economy of fuel consumption at low or cruising powers being of paramount importance, this object has been attained by adding variable initial stages in the high-pressure turbines. The height of the blades, together with the number of stages and nozzles in use, is so designed as to be exactly suited to the requirements. Groups of nozzles are under control by means of ordinary shut-off valves, while the number of wheel stages in use is controlled by interstage valves, these being operated by means of gearing.

With reference to the materials used in the construction of the turbines, it may be mentioned that owing to the use of superheated steam, the turbine casings are partly of cast steel; this also applies to the dividing diaphragms. The blading material is of phosphor bronze throughout. Careful attention was given to the selection of the material for the diaphragm guide vanes, and this is of a special noncorrodible steel manufactured by Hadfields Limited of Sheffield. The rotating parts of the turbines, consisting of the shafts and wheels for the rotors, are made from ingot steel forgings.

In order to provide flexibility in the connection between the turbines and gearing, couplings of the claw and sleeve type are fitted, these being made entirely from forged ingot steel. The gearing is of the double-helical type, with each section of the wheel rim placed a sufficient distance apart to allow of central bearings being fitted to the pinion shafts. The gear wheel itself is of the built-up type, the rims being provided with flanges to which are bolted the side plates, these in turn being bolted at the center to flanges on the wheel boss. The rims, shafts, and bosses of the gear wheels are made from ingot steel forgings, while the pinions which are in one with their shafts are of nickel steel.

The gear cases, which are mainly of cast iron, have the bottom portion, which merely forms a trough, made of steel plates. The bearing bushings for the pinion and wheel shafts are made in gunmetal lined with white metal as is usual with Admiralty practice Throughout the turbines and gearing all shaft bearings work under a system of forced lubrication, while the teeth of the gearing have special provision made for their lubrication.

The turning gear, which is placed in close proximity to the main gear cases, has the large worm wheel placed direct upon each main line of shafting. The turning gears are operated by electric motors through a Hans Renold patent chain.

For the examination and overhaul of the turbine rotors, blading and gear wheels, which necessitates the removal of the upper por-

tions of the turbine cylinders and gear cases, special lifting appliances have been provided. These consist generally of lifting blocks, hand operated, and arranged where required to traverse upon runways attached to the ship's structure.

The port and starboard sets of turbines being entirely independent, their control under maneuvering conditions is carried out in each engine room. The ahead and astern going maneuvering valves, together with the isolating and other valves, being placed in the direct run of the main steam pipes which are overhead, extension spindles are led down to handwheels, at a convenient height from the starting platform.

To provide for expansion in the main steam pipe lines, balanced expansion joints are provided, these being fitted with metallic packing supplied by the United States Metallic Packing Co.

The thrust from the propellers is taken by the well-known Mitchell arrangement, the thrust collar of which is 47½ inches in diameter. Patent thrust-measuring apparatus is also fitted to each thrust block. The intermediate shafting is all hollow bored, and supporting bearings for these shafts are situated at frequent intervals, those bearings working under forced lubrication, with glands fitted at the ends of the bearings to prevent waste. The whole of the thrust, intermediate and propeller shafting is made from ingot steel forgings, all in accordance with British Admiralty tests and requirements. The large forgings for the machinery were supplied by Sir W. G. Armstrong, Whitworth & Co. (Ltd.), Manchester.

The propellers are of solid bronze, carefully balanced and finished.

The main condensers are of the Weir's uniflux type, with internal arrangements as usually adopted for Admiralty vessels. They are underslung from the low-pressure turbines, a position in which the condenser is generally placed for geared turbines in marine work, and naturally simplifies the drainage problem. The condenser bodies are built up of steel plates and angle bars, while the tubes and tube plates are of the usual mixture for naval work. The ends and doors are of cast steel.

The condensing plant is capable of maintaining a vacuum of at least 28 inches when the barometer is standing at 30 inches and with a sea-water temperature of 55° F.

The circulating pumps, two to each main condenser, are of the centrifugal type, each pump being driven by a two-crank high-pressure inclosed forced lubrication engine. The air pumps, four in number, each having two pump barrels, are of G. & J. Weir's "Paragon" type and are each driven by one steam cylinder. Working in conjunction with each air pump there are two steam jet vacuum augmenter ejectors, which are provided with their own con-

densers, these being circulated by feed water and raising the temperature of same. The delivery of the condensate from the air pumps to the main feed tanks is through feed heaters of the direct contact type. Auxiliary exhaust steam only is used as the heating medium. In the feed tanks are placed the usual sponge filtering arrangements.

The feed pumps of the direct-acting type consist of eight units in all, four of these being designated main and four auxiliary feed pumps. The size is the same in both cases, and four pumps can deal with the whole of the feed water at full power. As is usual, these are located in the boiler rooms, in which compartments there are also feed heaters, four in number. These heaters are of the surface multiflow type, capable of raising the temperature of the feed water by 60°, with auxiliary steam as the heating medium.

In connection with the forced lubrication system, 10 pumps in all are provided, 4 of which are for the supply of oil to the turbine bearings and 4 in connection with the gearing, while the remaining 2 are for the thrust and shafting bearings. These pumps are all of the direct-acting verticle type. Oil coolers of the "Serck" type are fitted as part of the above system, together with the usual oil strainers.

For the supply of the circulating water necessary for the above coolers there are four direct-acting vertical pumps of Weir's make. The main oil drain tanks are built as part of the ship's structure.

Auxiliary condensers, of which there are two, are arranged one in the wing of each engine room. They are of the Weir uniflux design with shells built up of steel plates and angle bars, while the water ends and doors are of cast steel, the internal arrangements being as usual in naval work. Each condenser has its own circulating pump of the centrifugal type driven by a single-cylinder inclosed forced lubrication engine of Drysdale's make, while there is also a separate air pump for each condenser, this being of the Weir "Monotype" design with a single pump and steam cylinder. These condensers are principally for use when the vessel is stationary, as adequate provision has been made for the utilization of auxiliary exhausts for obtaining a high over-all thermal efficiency by the installing of both direct contact and surface feed heaters, as previously mentioned, or alternatively by admitting auxiliary exhausts to the main turbines at a suitable intermediate stage, or again by a discreet use of both systems, as can best be found by trial.

In each engine room is fitted an evaporating and distilling plant. These sets are distinct and entirely independent of each other. Each set consists of two evaporators and one distilling condenser, together with pumps and fittings.

Additional units of auxiliary machinery consist of eight fire and bilge pumps, distributed throughout the engine and boiler compartments. These pumps are of the vertical direct-acting type, supplied by G. & S. Weir. A general service air compressor of the vertical single crank two-state type has been installed.

With regard to the auxiliary machines generally, they have been supplied complete with all the usual fittings and accessories, including metallic packing, lubricating arrangements, lagging of steam cylinders, all in accordance with Admiralty requirements.

The engine builders have also been responsible for the supply and erection on board of the steering gear, which is of the electro-hydraulic type. The main air-compressing machinery supplied by the Admiralty was completed on board by the engine builders.

A very complete set of workshop machinery has also been provided and erected on board, consisting of lathes, boring machine, shaping machine, drilling machines, motor-driven forge, crucible furnace, and numerous other small machines and plant. Power for driving the machines is supplied by an electric motor, which is transmitted to the machines through countershafting and belting.

The boilers, eight in number, are of the three-drum small-tube type of the usual design as adopted for naval work. They are arranged for burning oil fuel only under the closed stokehold system of forced draught. To each boiler superheaters are fitted, and facilities are provided in the boiler rooms for the easy withdrawal of the heating tubes for examination purposes. The uptakes from all the boilers are grouped and led up into one large funnel. The details of the construction of the boiler casings, uptakes, and funnel are generally those which obtain in British Admiralty work.

The oil-burning installation is of the usual naval type, to which the oil is sprayed under a direct pressure head. For supplying the oil to the sprayers there are eight pumps in all of the vertical direct-acting type, the pump end being of cast iron fitted with cast-iron liners. Oil-fuel heaters of the "U" tube type are fitted one to each boiler, these heaters having outer casings of steel. The usual filtering arrangements are provided. A hand oil-fuel pump of the three-throw crank type for use when raising steam is fitted in each boiler room.

The air supply to the boiler room is provided by an installation of eight fans of ample size. These fans are of the single-inlet type, and each direct coupled to a single-cylinder inclosed forced lubrication engine. They are constructed suitable for working with the full boiler pressure, but are also capable of fulfilling the specified duties with a much lower admission pressure when working against the usual back pressure. The efficiency of the air delivery is main-

tained at a high level by the use of air deflectors which form part of the boiler room structural arrangements.

The sea trials of the *Nelson* demonstrated that the high efficiency anticipated has been fully realized, both as regards fuel economy and mechanical transmission.

The following additional details of work on the *Nelson* have generally been supplied by subcontractors:

The United States balanced expansion joint packings as fitted on the main steam pipes and on the turbines are a most interesting development of United States metallic packing so largely fitted to the piston rods and valve spindles of reciprocating engines. Their great advantage is that large expansion bends can be dispensed with, a consideration of the utmost importance where space is restricted. The packings are arranged to permit of free longitudinal expansion and contraction of the steam pipes, and they also allow clearance for the rise and fall of the turbines, etc., thus eliminating many of the strains due to rigid connections. The packings are constructed to accommodate themselves to the variations in diameter of the steam pipe, due to alterations in pressure and temperature.

The entire equipment of insulation throughout this vessel was provided and applied by Newall's Insulation Co. (Ltd.), of Newcastle-on-Tyne, according to their latest methods and in compliance with Admiralty requirements and specifications. The insulation of the boilers and other steam-generating plant consisted of the firm's 85 per cent magnesia insulation, suitably adapted and combined with asbestos mattresses. Nonpareil cork was also employed for other purposes.

NOTE.—*Other articles on the "Nelson" and "Rodney" as well as photographs have been given frequently in these pages during the past year. These two vessels are of 35,000 tons standard (almost 40,000 tons normal) displacement. They mount nine 16-inch guns in three turrets forward. The "Nelson" recently joined the Atlantic fleet as flagship; the "Rodney" is undergoing trials.*—ED.

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4. Gunnery school, Whale Island.

The gunnery school, Whale Island, Portsmouth, was recently visited. At the time of the visit there were 16 officers taking the "long course" (gunnery officers), 40 sublieutenants taking the "qualifying course," and 850 enlisted men undergoing gunnery training. The battle cruiser *Tiger*, a light cruiser, and a destroyer are assigned to the school for conducting firings and tests. It has been announced that the *Tiger* will be replaced by the battleship *Marlborough* in the near future. At bombardment practices on these vessels the gun

and control stations are manned by officer and enlisted-student personnel from the gunnery school.

A rather interesting 6-inch gun drill was staged with the crew completely outfitted in flameproof clothes and gas masks. The recoil of the gun was simulated by hydraulic pressure and the discharge by firing 30-caliber blanks into a drum head.

There is no question that the equipment, layout, and methods for imparting general gunnery knowledge at Whale Island are excellent and the course of instruction thorough. There is an atmosphere of high morale about the place, and both the staff and students evince keen interest and great pride in their work. It regards itself as the home of gunnery in the British Navy and it is the mother school in its relations with the other gunnery schools at the several dockyards. There was some complaint of the unavailability of the latest developments in ordnance and fire-control material for instructive purposes. It was stated that prints and descriptive matter of the installations on the *Rodney* and *Nelson* and the new cruisers had not yet been received but were expected shortly.

Undoubtedly the young British officer does not go to the fleet in the first instance as well equipped with ordnance and gunnery knowledge as are our ensigns on leaving the Naval Academy, but there is a lot to be said for the British system, particularly as regards the establishment on shore at home ports and bases of well-equipped gunnery schools for refreshing and supplementing the training in the fleet.

B. AERONAUTICAL

1. British aircraft factories.

The Avro Co. are building several airplanes for the Admiralty; one of these is the Avocet deck-landing all-metal biplane with a supercharged Siddeley Lynx engine. The contract for this airplane calls for a speed of 140 miles per hour at 10,000 feet. Another new Admiralty airplane is the *Buffalo* torpedo carrier having two duralumin floats with concave V bottoms and a single step.

The firm is starting for the Air Ministry a single-seat pursuit airplane called the *Antelope*, which will have a supercharged Rolls Royce F.10 engine. In order to be accepted, the *Antelope* will have to fly 185 miles per hour at 18,000 feet.

An example was seen of a new Avro *Avian* two-seat light airplane which has an ingenious landing gear, the wheels of which move back when the wings are folded, so that the airplane does not become too heavy to lift by the tail when the wings are in the folded position. In this landing gear, which is of the axleless type, the rear

strut of each V is attached to the rear spar and so pulls back its wheel when the wing is folded. As the upper ends of the front spars are hinged to a crossbeam in front of the front spars the wheels easily roll back, the whole landing gear lowering automatically.

BRISTOL AEROPLANE CO. (LTD.), BRISTOL AIRPLANE DEPARTMENT

The opportunity was taken of examining again the *Bulldog* single-seat pursuit biplane.

It is to be noted that the principal parts of the *Bulldog*, which are of steel, are rolled and not drawn. The spars, of 65-ton steel, are not electrically heat treated, as is the Armstrong Whitworth practice. The wing ribs are entirely of steel, but the tail ribs have duralumin diagonals.

The *Bulldog* now has a Mark VI Jupiter, but later this will be replaced by a supercharged Mark VII.

It has been possible to obtain the following information on the *Bulldog:* Wing area, 300 square feet; weight, empty, 1,987 pounds; useful load, 1,113 pounds; total weight, 3,100 pounds; maximum speed at 10,000 feet, 172 miles per hour; climb (without full load), 20,000 feet in 11 minutes.

The Bristol designer has completed drawings for a reduced edition of the *Bulldog*, entitled the *Bullpup*. It will be built for interceptor fighting. The wing loading of the *Bullpup*, which will carry only 60 imperial gallons of gasoline (instead of 76 taken by the *Bulldog*), will be 12½ pounds per square foot. The smaller airplane is intended to have a horizontal speed of 152 miles per hour during its climb, as it is intended to catch an invader credited with a horizontal speed of 150 miles per hour.

The Bristol Co. have built a tapered cantilever monoplane having two Mercury engines in the wings. This airplane is called the *Bagshot* and is remarkable by reason of its armament, which consists of two Coventry Ordnance Works ½-inch guns, one of which is in the nose of the fuselage and another in a cockpit behind the wings. Each gun has a supply of 35 shells. Behind the position of the rear gun is another cockpit in which twin-machine guns are mounted. The total weight of the *Bagshot* is about 8,000 pounds.

A similarly armed airplane entitled the *Westbury* has been ordered by the Air Ministry from the Westland Co.

The Bristol Co. have built, on their own initiative, a two-seat fighter known as *Type 101.* This airplane, equipped with a Jupiter engine, is a single-bay, very heavily staggered biplane and is to be exhibited at the Copenhagen Aviation Exposition.

The engine department has a force of about 900 men and is turning out 25 engines per month, as compared with the production

of 70 engines per month by Gnome & Rhone in Paris. Of course, the outstanding engine sensation in British air circles is the new Mercury engine, of which 20 are being delivered to the Air Ministry. Although the cylinder dimensions are only 5¾ by 6½ inches (the bore being the same as and the stroke 1 inch less than the Jupiter), it has the amazing output of 870 horsepower at 2,250 revolutions per minute.

The weight is only 673 pounds and the mean effective pressure, 202, instead of 130 for the Jupiter VI. The diameter has been reduced to 49 inches, due to the shorter stroke and to the new yoke type valve operating gear, giving a flatter head. The expansion equalizer bar running from the crank case to the valve rockers has been retained in the new gear.

The cylinder head of the Mercury has been specially designed by Ricardo. Its shape resembled a truncated cone, the valves being inclined. The cylinder head is of forged duralumin and is screwed to the steel barrel. The nose of the crank case is long and tapered to facilitate stream lining.

The Mercury, of course, has a supercharger, which is a geared centrifugal blower incorporating an ingenious elastic spring drive. The center gear has six coil springs in the thickness of the wheel between the hub and the peripheral teeth. Each of the three smaller gears around the outside has blocks which, under centrifugal force, press against the periphery. With this elastic drive no trouble has been experienced even with very sudden throttle openings.

The fan, each blade of which has lips down one side, turns at ten and two-tenth times the engine speed through a two-step gearing. The diffuser directs the air into a circular duct around the crank case from which pipes lead to the cylinders. The air passes from the carburetor to the fan in a single spiral passage.

The Bristol engine designer believes that the geared blower is the best solution for airplanes of less than 4,000 pounds total weight, in which economy is secondary to absolute performance. However, to meet the demand for exhaust-driven superchargers, the Orion has been developed and 10 delivered to the Air Ministry. This engine is considered particularly suitable for long-distance day bombers. The engine is very similar to the Jupiter, being of the same size but having the new Mercury head. It develops 430 horsepower at 20,000 feet. There are accordion pipes between the cylinders and the exhaust ring to take care of expansion, whereas in the ordinary steel exhaust ring supplied on Jupiter engines merely slip joints are provided.

Of course, neither the Mercury nor the Orion will be available except to the Air Ministry until the latter part of 1928, and the

company expects to continue its production and improvement of Jupiter engines in the meanwhile.

HANDLEY PAGE (LTD.), CRICKLEWOOD

The principal work at the Handley Page factory consists as usual of orders for *Hyderabad* night bombers. Ten of these airplanes with the geared Napier V engine were seen. They are practically identical with the older type except that the tail surfaces now resemble those of the *Hinaidi*. The bomber lies prone in the fuselage near the nose on the left side. It is expected that the usual bomb-release gear will be superseded by a new type in which the cartridge is electrically fired, projecting a piston against a lever which releases the bomb. This device overcomes the lag in the wire controls due to stretch, and also wires do not have to be changed for different sizes of bombs as at present. It is stated by Mr. Handley Page that the rights for this device have been bought by the Japanese.

In a corner of the factory behind the screen was a variant of the *Harrow* biplane torpedo carrier built for the Admiralty.

SHORT BROS. (LTD.), ROCHESTER

At the Short factory 1,200 workmen are employed, but only 500 are on aviation work, the others building aluminum motor-bus bodies.

I was shown two *Calcutta* flying boats being built for service between Brindisi and Alexandria or Calcutta and Rangoon.

The first example is almost completed as regards its structure. It is entirely of duralumin except for the wing covering. It is to be fitted with three Mark VIII Jupiter engines geared 2 to 1 and giving 500 horsepower at 2,000 revolutions per minute.

The hull is of the two-step type, but the depth of the rear step is only one-half inch. The general section of the hull is of Linton Hope design, with large chines and a deeply curved V bottom. The rear part of the hull is of oval curved V bottom. The rear part of the hull is of oval section. In the hull are carried a crew of 2 and 16 passengers.

The duralumin hollow wing spars are pressed from strips and not drawn. The webs are of wave section and the top and bottom flanges semicircular.

The duralumin wing ribs are made up of tubes both as to cap strips and diagonal members. The ribs of the ailerons, fitted to the upper wing only, and elevators are of duralumin sheet pierced with circular lightening holes, this being cheaper than the built-

up rib construction. The duralumin is protected by the anodic process and there is no fabric inserted between adjacent duralumin parts as is Dornier practice.

Like the *Singapore* (the military equivalent of the *Calcutta* but with two Condor engines), the center rudder has a separate small Flettner rudder trailing behind it and acting as a servo-control. The side fins in the slip streams of the wing engines are adjustable in flight. There is only one pair of interplane struts outboard of each wing engine despite the span of about 100 feet.

The weight, empty, of the *Calcutta* is 11,600 pounds; the useful load 8,100 pounds; and total weight 19,700 pounds. The cost of each seaplane without engines is £19,000 ($95.000).

The Short factory has built a two-seat deck-landing twin-float seaplane entitled the *Sturgeon* and fitted with a Jupiter engine. This seaplane is intended to land on deck and for this purpose each float has a long flat keel from the nose to the single step. The rubber shock absorbers are inset in the tops of the floats at the lower ends of the struts. This biplane is rather heavily staggered and is of the single-bay type.

A couple of floats were seen being made for a Gloster Schneider cup seaplane. They have the usual rounded top, but the V bottom has practically no concavity. The very small step, only one-half inch high, is considered an important feature.

SUPERMARINE AVIATION WORKS (LTD.), SOUTHAMPTON

The Supermarine factory is one of the most flourishing in England at the present time. Several new buildings have been erected and 1,000 men are employed.

The Supermarine seaplanes are low-wing monoplanes in which the fuselage and the twin floats are built of duralumin and the biconvex wings of wood.

The Lion engine is a modification of the Mark IX and has a long forward extension of the crank case in order that the nose may be properly stream lined. On account of the very small section of the fuselage, the three-cylinder banks project considerably but are cowled in. The cowling of the center bank is continued back along the top of the fuselage, forming a backbone interrupted only by the cockpit and merging into the big tail fin. The cowling of the lateral banks is gradually faired into the sides of the fuselage.

Four wooden and 12 duralumin hulls for the Southampton flying boats were noticed. Much of the wing construction for these airplanes is being done under subcontract by other factories.

Several amphibian deck-landing flying boats with two Lynx engines arranged laterally were seen. This is a new type called the *Seamew*, built to the order of the Admiralty, and is a three seater, with cockpits projecting sharply above the hull.

The wing structure of the *Seamew* is of duralumin, the hollow spars having wave-section webs and semicircular flanges. The ribs have tubular and channel-section members and are held in place against the curved flanges of the spars by small fittings under compression.

All the duralumin parts are protected by the anodic process, as the Supermarine Co. has a plant for this work.

The amphibian gear for the *Seamew* is very much like that of the *Seagull*.

Vickers have built for sale to a foreign power a two-seated observation and light bombing biplane called the *Vivid*. This is similar to the *Valiant*, but no provision is made for carrying desert equipment.

Instead of the Jupiter, a geared Lion engine is used, increasing the dead load by about 400 pounds. The *Vivid* weighs 4,200 pounds empty, and it has a useful load of 1,300 pounds, including two 250-pound bombs.

The rectangular honeycomb radiator is placed below the engine just behind the propeller and is quite well merged into the general lines of the fuselage, which is square in section with top fairing. The spinner, which is in two pieces, the cone being separate from the rear portion, is very carefully balanced by pieces of solder to reduce the chance of bursting.

There is provision for attaching a Hucks field starter and there are two-hand starters. As in most Vickers designs, the rear cockpit is sunk below the front one in order to protect the gunner as much as possible from the slip stream.

The Frise type lower ailerons are operated through bell cranks and the movement is transmitted to the upper ones through struts.

Vickers are now building for the Admiralty a deck-landing, low-tapered wing monoplane, with a Jupiter engine, called the *Virio*. The construction of the *Virio* is entirely of duralumin, including the wing covering, which follows Wibault practice. The spar design is most unusual, the web being a zigzag, with flats between the diagonals, having grooves for rigidity. The extruded flanges are riveted to the top and bottom of the web.

Vickers have built some variable pitch duralumin propellers in which each blade is held in place as in the standard steel propellers.

By means of indicators the exact angles of the blades are known and can be varied without dismantling the propeller.

NOTE.—See the "Bulletins" of last March, May, and August for further notes on British aircraft and aircraft factories.—ED.

2. *British racing seaplanes.*

[*Source: British press*]

1. At the recent Schneider cup races Great Britain had contending Supermarine-Napier and Gloster-Napier planes. The race was won by a Supermarine-Napier with a speed of something over 281 miles an hour, and a Gloster-Napier took second place with a slightly lower speed. A description of these planes follows:

SUPERMARINE NAPIER

The fuselage is probably smaller in cross-sectional area than any fuselage previously designed, and the area of the maximum section is only just over half that of the 1925 machine, which had an area of only just over 8 square feet. Very skillful designing is evidently required to accommodate in such a small space an engine developing enormous power.

The storage of the petrol has been overcome most ingeniously, for space in the fuselage has been saved by placing the petrol in one of the floats. The starboard float has been chosen for this purpose in order to permit the weight to exert some effect in balancing the torque of the engine in an opposite sense. An engine-driven pump forces the fuel to the engine, and the actual petrol tank forms one section of the float. There is a small header tank for the cooling water faired in behind the center cylinder block, but the cooling is effected by means of wing radiators, which again represent a departure from hitherto accepted practice. Instead of presenting a corrugated surface to the air, the outer skin of the radiators is perfectly flat and forms the surface of the wing, with the result that no extra resistance is set up. It is hoped that the necessary cooling will thus be secured without any loss at all in resistance. The oil is cooled in a somewhat similar way by being passed along both sides of the fuselage in contact with the skin through specially constructed coolers.

The fuselage is constructed entirely of metal, and the metal skin takes practically all the stresses, while the engine mounting consists of a cantilevered extension to the fuselage, the skin of the mounting again taking all the engine loads. The wing is built of wood and is covered with special laminated wood underneath the radiators; it is rigidly braced from the top of the fuselage and to the floats, which are tied together by bracing wires and not by cross struts. The effect is to insure absolute rigidity, a matter of vital importance, with the minimum of resistance, and as the engine blocks are really part of the body shape there is no place where the air is not led past the machine in a clean and smooth flows. The pilot's head comes in a gap in the fairing leading back from the middle cylinder block, and his cockpit is fitted with a tunnel type of windscreen which also preserves the general lines of the top of the fuselage. As is not unusual in specially clean machines of this design there is

a tendency for exhaust fumes to be sucked into the cockpit, and fresh air ducts have been fitted to clear the cockpit and also to sweep out hot air. The tail unit is usually clean, and all controls are internal. The floats, which are of duralumin specially treated to resist sea water corrosion, appear of abnormal size in relation to the size of the fuselage, but their size is naturally dictated by the buoyancy required and are probably two-thirds of the length of the fuselage. An indication of the smallness of the machine itself. Its span, in fact, is only 26 feet 9 inches, and the over all length is 24 feet 2 inches. The air screw is of duralumin and is made by the Fairey Aviation Co., of Hayes.

It is now permissible to state that the engine, which normally develops 450 horsepower, had been developed to give in its ungeared form 890 horsepower for 805 pounds, under 1 pound per horsepower, and that the geared engine developed the same horsepower for a weight of 920 pounds. This was the first time that a reduction gear had ever been successfully applied to a racing engine, and the tribute to the engineering skill of D. Napier & Son (Ltd.) is all the greater in that every engine ran perfectly throughout the race, the one machine which did retire doing so because of a broken spinner on the propeller boss. These engines of the broad arrow type, have a shorter crank shaft than the V type, and in view of the speed the aircraft reached and the beautiful way the engine was shaped to assist cooling it is clear that the frontal area of the broad arrow is no hindrance to extreme speed.

GLOSTER-NAPIER IV

The Gloster-Napier *IV* is a biplane, and looking at the actual machine it is difficult to conceive how a biplane structure could have been made more efficient from the point of view of the reduction of head resistance. Naturally, the single wing of the monoplane makes it more attractive to the eye, but the problem of the two types of construction does not depend upon mere appearance.

Complete reference in detail to these must be withheld at the moment, but it may be said that the fuselage is of laminated spruce construction, being built of spruce strips about 3 inches wide and one-sixteenth of an inch thick. By varying the number of strips used throughout the length of the fuselage the lightest possible structure can be obtained consistent with the strength required. The fins, which extend above and below the tail, are built integrally with the fuselage and are also covered with laminated spruce, while the wooden tail plane, contrary to usual racing practice, is adjustable on the ground and can be set to any desired incidence, although it is to all intents and purposes integral with the fuselage. This enables the best possible adjustments for flying trim to be obtained. The wings are of the wood-covered multi-spar type and are of spruce throughout, and, as in the case of the fuselage, the thickness of the covering is varied as the loads require, so that a very smooth and rigid surfaced structure is the result.

The engine bearers are in themselves noteworthy, and a duralumin bedplate for the engine is supported by steel tubes in which all welding has been entirely eliminated, while all main joints are fitted with stainless steel taper bolts of ample dimensions to insure a good fit. The tubes are keyed to the duralumin bedplate so that here again a very rigid structure is insured. The oil tank is ingeniously mounted under the engine bearers, and is shaped to conform to the lines of the fuselage, the outer surface being ribbed to form a cooler as well as a container. The oil passes along internal corrugations after leaving the engine, and in order to insure that the oil is kept within the proper limits there are auxiliary coolers mounted along the side of the fuselage. The water

radiators are of the wing type mounted flush with the surface of the wings, and are made of thin corrugated copper sheet, the waterways and the leading and trailing edges being of brass. Additional surface radiators are mounted on the floats and these are particularly effective, as they are water-cooled during protracted taxi-ing when the engine is most likely to need extra cooling.

An instance of the extreme care taken to reduce every form of parasitic resistance is found in the interplane struts, which are made of duralumin forgings lightened on the inside; the use of duralumin permits of a strut with half the frontal area of the equivalent strut in wood. The same care has been taken with the chassis struts, and those at the rear are of a special oval section in order to take the waterway from the float radiator.

The controls naturally are all internal, the ailerons being actuated by torque tubes running inside the top plane, while the elevator and rudder controls are inside the fuselage. These controls, it is worth noting, are fitted with a special variable gearing giving a ratio of approximately 3 to 2 for the initial movements of the control column, and a ratio of 2 to 3 for the final movements. This insures that the pilot has controls which are not only light and effective at high speeds but also when alighting or taxi-ing on the water at low speeds. The air screw used is a special design of the Gloster Co., and is made from duralumin forgings, milled on a special machine to the correct contour and pitch. Thus any twisting of the metal is avoided, and two types are made, one being of the fixed blade type and the other with detachable blades fitted in a special hub which permits of fine adjustments of blade angle.

NOTE.—The British press and public were very enthusiastic over the results of the Schneider race. They hail this event as a vindication of the Air Force policy and the ability of British pilots and designers, for there have been occasional utterances previously that Britain was falling behind in the production of high speed craft.—ED.

C. MISCELLANEOUS

1. Merchant marine.

Great Britain maintains her great and well known preponderance in a seagoing merchant marine, a prime factor of her sea power. An analysis of the seagoing steel and iron steam and motor tonnage owned by the principal maritime nations of the world, as of June, 1926, shows that Great Britain then operated 36.4 per cent of the world's tonnage. The operation of this fleet of merchant vessels develops an enormous body of men, trained and accustomed to seagoing, readily adaptable to the needs of the navy.

British shipbuilding returns up to June 30, 1927, the latest available, show that there were under construction at that date for the British flag 172 steam and motor vessels of 2,000 tons gross and over, as opposed to the entire world production of vessels of the same size for all other countries of approximately 323. For the year 1926 and until June 30, 1927, Great Britain launched 433 steamers and motor ships as opposed to a total of 441 such vessels for the rest of the world. The foregoing brief figures indicate the present activity in building up the British merchant marine.

Realizing the great number of vessels of the British merchant marine that would be useful as naval auxiliaries during war, particularly those of large and fast type, the preponderant power of this potential and growing auxiliary strength for the British Navy is apparent.

An instructive feature is the situation in respect to the tanker tonnage of Great Britain. In June, 1926, the preponderance of tanker tonnage of vessels of 1,000 tons and above was held by the United States and Great Britain, each about equal. The shipbuilding returns show that during 1926 Great Britain launched 20 tankers of 1,000 tons and above, as against 21 for the rest of the world, and at the end of March, 1927, there were 57 such tankers under construction in Great Britain, as against 40 for the rest of the world; at the end of June, 97 tankers under construction in Great Britain and 86 for the rest of the world. These indications point to a policy of increase in British tanker tonnage.

NOTE.—In spite of the above, it is of interest and importance to note the campaign which is being carried on in the British press in opposition to the upbuilding of the United States merchant marine. This campaign is apparently organized and generally takes the form of either ridicule or bitterness. Supposedly, it is in answer to the contemporary campaign in the United States for a stronger merchant fleet.—ED.

ITALY

A. NAVAL

1. Launching of submarine.

The submarine *Millelire* was launched recently at the Ansaldo San Giorgio Yard (La Spezia). The *Millelire* is a wide-radius submarine and may serve as a mine layer.

Characteristics:

Tonnage	1,400.
Length	285 feet.
Width	25 feet.
Immersion	14 feet.
Maximum depth	328 feet.
Maximum speed on surface	18½ knots.
Maximum speed immerged	10 knots.
Time for immersion	30 seconds.
Armament	6 torpedo tubes, 1 gun, 1 tube for laying mines.
Engines	2 internal-combustion, total horsepower, 4,400; 1 auxiliary, 425 horsepower.
Electric engines for propulsion	2,200 horsepower.

Other ships of the same Class now under construction are the *Betilla*, already launched, and the *Scesa* and *Toti*, not yet launched.

NOTE.—*It will be remembered that Italy, like France, is devoting herself to the building of smaller craft—cruisers, destroyers, and submarines—these being deemed best for defense purposes and less expensive than large units. Italy now has under construction 15 submarines.*—ED.

B. AERONAUTICAL

1. The aeronautical maneuvers, 1927.

The aeronautical maneuvers will consist of a series of experimental maneuvers, each of which will be more or less independent of the other, like separate episodes of a succession of operations relating to a determined war situation.

Most of the maneuvers will be carried out by opposing forces but each force will be under the command of the "direction of maneuvers."

Maneuvers will last about 10 days; 5 days for practical maneuvers and 5 for problems, lectures, and experiments.

The zone chosen for this purpose is between Venice and Brescia over high mountains and wide plains.

The squadrons involved will use for their bases the airports of Aviano, Ghedi, Brunico, and Gardolo.

There will be practice for mobilization, bombardment, organized defense of precise localities, etc.

Bombardment will take place in a zone sufficiently deserted not to involve danger. Although the maneuvers will be cramped by lack of funds yet it is hoped that they will materially increase the knowledge on problems of aerial warfare.

Observations and suggestions which will doubtless occur to the umpires and commanders of all ranks during the maneuvers will be examined and taken into serious consideration after the practical maneuvers are over.

NOTE.—The Italian Government is doing all in its power directly and indirectly to make the Italian people "air-minded." The recent marked defeat of the Italians in the Schneider cup race was rather a severe blow to this program and to Italian aeronautical pride—ED.

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2. Organization of chief of general staff, "Regia Aeronautica."

[*Source: M. I. D.*]

(*NOTE.—The "Regia aeronautica" is the official name of the Italian air force, combining both land and sea services.*—ED.)

Office of the secretary, under a colonel or lieutenant colonel, aeronautical arm.

c. Historical section: d. Foreign liaison section: each under an officer, aeronautical arm.

First section: Operations, under a general or colonel, aeronautical arm. First office: Operations, under a colonel, aeronautical arm: cartographic section, under a captain, aeronautical arm. Second office: Training, under a colonel, aeronautical arm. Third office: Military intelligence, under a colonel, aeronautical arm.

Second section: Organization and mobilization, under a general or colonel, aeronautical arm. First office: Organization, planning and coordination under a colonel, aeronautical arm: treaty section under a lieutenant colonel, aeronautical arm. Second office: Mobilization, under a colonel, aeronautical arm. Third office: Technical services, under a colonel, aeronautical arm.

DUTIES OF THE OFFICES AND SECTIONS LISTED ABOVE

Office of the secretary.—Personnel, discipline, internal service of the general staff office: affairs of a confidential nature or communication to several offices: incoming and outgoing mail: codes: subdivision of affairs to the offices: liaison with other offices of the Air Ministry, with the office of the chief of supreme general staff, with the offices of the chiefs of staff of army and navy: proposals for decorations: files of confidential and secret correspondence: reproduction, filing, and distribution of confidential documents: political-military questions: general trend of aeronautical publications: directing office of the "Rivista aeronautica."

Historical section: Gathering and examining military aeronautical documents, papers, publications, etc., concerning the creation, development, and employment of air forces in Italy and abroad: history of aviation.

Foreign liaison section: Liaison with foreign attachés and with officers and other aeronautical personalities on special missions to Italy. Transmission of aeronautical information to same.

Operations.—First office, operations: Military position of Italy, colonies and foreign states: plans for the operations of the air fleet: air force assigned to army and air force assigned to the navy in accordance with the instructions of the chief of supreme general staff and in accord with the staff of the army and navy: studies for the defense of the principal cities and other important points of the Kingdom: coast defense: various hypothesis of war and consequent liaison with the staffs of the army and navy for joint action: studies in connection with assignment of air force to large units of the army and to navy departments: studies in connection with aeronautical operations in the colonies, in accord with the Ministry of Colonies;

studies in connection with oversea operations; studies of the characteristics of employment of aircraft and their armament; studies of the air routes and organization of routes; location of fields and distribution of squadrons; relative opinions to be made known to the organization and mobilization section.

Air maneuvers, with army and with navy, in collaboration with the training office: Suggestions in connection with the organization of radio services, telegraph and telephone services, etc., in connection with air operations and with defense of the Kingdom.

Cartographic section: Map collection of the general staff office; war maps for the regia aeronautica; military and civil aeronautical guides; field charts; military aeronautical publications; various publications; air maps, national and international; preparation and printing of the new Italian air map; aerophotogrammetry; employment of photographs for cartographic purposes.

Second office, training: War training of squadrons, groups, and wings; regulations and instructions for training of squadrons of all specialties; programs, coordination of studies and instructions of the aeronautical academy and of other aeronautical schools; cruises and competitions, military character; study and preparation of rules and regulations in connection with signalling for liaison between aircraft and units of the army; aircraft carriers.

Rules for training: Rules for the military employment of aerial photography, radio, and radiotelephony.

Third office, military intelligence: Gathering of informations on the situation and military doctrine of the air forces of the various States; study of informations; instructions to air attachés abroad; organization and informations in war time; the service of military police and the defense of military secrets; codes and cipher of the regia aeronautica; interception service.

Organization and mobilization.—First office, organization: Studies in connection with organization, formation, and expansion of air forces in peace and in war time; distribution of units in accord with the operation section: work and equipment of air ports and fields; distribution of headquarters; units, formation of new units; studies in connection with number of machines to be assigned to units, armament, munitions, equipment, various supplies, fuel, and oil; studies in connection with budget, recruiting, period of service, discipline, promotion and retirement of military personnel of the regia aeronautica: studies in connection with authorized strength, taking in consideration the needs of all organizations of the Regia Aeronautica; competitions for enlistment; general questions of territorial service; rules and regulations.

Treaty section: Preparation of treaties and conventions (international) concerning the Regia Aeronautica: studies and programs for conferences: international committees and delegations for aeronautical subjects: enforcement of the conventions and treaties, in particular those for peace time: questions discussed by the League of Nations, those of disarmament and budgets in particular: relations between the Air Ministry, the War and Navy Ministries and the Foreign Office in connection with the above-mentioned questions.

Second office mobilization: Studies, preparation, and issuing of orders and regulations concerning: Mobilization of the Regia Aeronautia, its constitution, war formation, employment of the reserve, organization of war units and their elements: rules for the collaboration of civil aviation to aerial warfare and proposal to the Air Ministry in connection with said collaboration: preparation and issuing of mobilization orders to officers, men, etc.: compilation of the mobilization bulletin.

Third office, technical services: Studies in connection with organization and functioning of aeronautical services: organization and strength tables: preparation of personnel assigned to services, training of same in accord with the other divisions interested or concerned: amount of service matériel for mobilization: rules for the functioning of the services in peace and war time: requisitions: industrial mobilization: studies and orders for mobilization transportation: liaison with other offices in connection with the gathering of data and statistics relative to aeronautical matériel.

NOTE.—The expression "technical services" is not very appropriate. It should be "supply services" or simply "services."

NOTE.—See the August "Bulletin" for further notes on the organization of the "Regia Aeronautica" and the relation of this service to the army, navy, the Government, and the Crown.—ED.

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3. Review of aviation service.

NOTE.—The air force provides and operates all aviation but when army or navy desire, certain units are loaned together with personnel. Interested branch furnishes the observers. Supply and discipline is quite complicated. The army and navy budgets show no appropriations, and amounts expended by air force can not be isolated.

HEAVIER-THAN-AIR TYPES OF PLANES

(*a*) *Regular establishments.*—(1) Data covering planes assigned to active service: Unit of organization: squadron, then group, then wing: total number of service units, 83, including colonial, but not including schools.

ACTUAL

Type of unit (squadron)	Number of planes in unit		Type of unit (squadron)	Number of planes in unit	
	Operating	First line reserve		Operating	First line reserve
Fighting	9	3	Bombing	6	3
Observation	9	3	Patrol	None.	None.
Torpedo	6	3	Scouting	None.	None.

Number of service planes; by types, at home, based at shore stations: Air fleet, land VF 253, land day bombardment, 105; sea VF 53, land night bombardment, 76; sea bombardment, 22; with army VO 214 = With navy VO 99.

Number of service planes, by types, at home, based on ships, 10.

Number of service planes, by types, abroad, based at shore stations: Land VO 67, land bombardment, 24; seaplanes, 2.

Total number of each type service planes assigned to battleships, to cruisers, to aircraft carriers, to aircraft tenders, to other vessels: AV—12 VF, 12 VO.

Total number of service planes in commission, 925; total number of service planes in reserve considered necessary to support the above planes in commission, 100 per cent.

(2) Data covering planes assigned for training purposes: total number of training planes in commission: Directly under Air Ministry 167; civil schools 1 plane per 5 students. These civil schools train enlisted men, reserve officers, and army and navy officers transferring to air corps. Exact number varies.

Total number of training planes in reserve considered necessary to support the above planes in commission: Equal number.

(*b*) *Reserve establishment.*—The Italians have no organized reserve as we know it. Released pilots and enlisted men take refresher courses and are assigned billets in the war organization, to which they report upon mobilization or as their class is called to the colors. Some reserve (complementary) officers are carried on temporary active duty either voluntarily or involuntarily.

PERSONNEL

ACTIVE AVIATION PERSONNEL (NOT INCLUDING THE COLONIES)

Total number of commissioned officers (all corps)	1,471
Total number of warrant officers	563
Commissioned officer pilots in above total	737
Warrant officer pilots in above total	156
Commissioned officer observers in above total	183

Warrant officer observers in above total	None.
Commissioned officers dirigible pilots	31
Students of Aeronautical Academy	113
Total enlisted men, excluding warrants	15,820
Enlisted pilots in above total	518
Enlisted student pilots	342
Enlisted observers in above total	None
Number civilians employed in technical staff, i. e., engineers, draftsmen, computers, technical assistants, etc.	150
Number civilian employed in clerical capacity	372
Number civilian mechanics	70
Number civilian laborers:	
Regular	188
Depending on requirements	to 1,000
Total number civilians employed	780

MISCELLANEOUS ITEMS

Italian taxation, customs, etc., bring in a yearly amount of, say, X lire. In accordance with approved budget expenditures for the same year aggregate, say, Y lire, Y being smaller than X, there is a margin, in general a very considerable amount of money, that the Government is free to spend in any way they think it most suitable. This amount of money is generally divided between public works and expenditures for national defense, army, navy, and air force. So far, only the army and navy have obtained a percentage of said amount in addition to their regular budgets. But for 1928, in view of the planned program of expansion of the R. Aeronautica, General Balbo requests a share for the air force, reducing the quota that would have been allotted to army and navy. He states in his speeches (in Parliament and the Senate) that the aggregate efficiency of Italian defense will not be decreased if the money is spent for the air force rather than for the army and navy exclusively.

In well-informed Italian circles it was stated that Premier Mussolini had decided to comply with General Balbo's request and that for the next year the air force was to receive 450,000,000 lire in addition to 700,000,000 normal budget. The extra 450,000,000 was to be entirely devoted to fields, hangars, ground organization, new aircraft, armament, accessories, and personnel necessary for the new units to be organized.

It is now understood that recent fiscal necessity has made obligatory the refunding of internal debt. Volpi (Minister of Finance) has persuaded Mussolini to give him all surplus for a sinking fund. Therefore aviation will not get anything over the budget figures. Next year the budget will probably be increased in view of this.

The practical effect is to make it extremely unlikely that the program of expansion can be carried out. Attempt is being made to raise 10 squadrons by popular appeal. Considerable pressure is being put on people to cause them to voluntarily donate to the cause. Workers in governmental and industrial concerns are practically forced to subscribe.

Plans for future expansion (building program):

Squadrons to be added	89
Squadrons by 1930	182
	Planes
Bombers	865
Pursuit	1,250
Observation	682
Total planes in service by 1931	2,797

Figures include land and seaplanes, first-line reserves, and second-line reserves.

Airplanes to be added, about 900.

Rate at which expansion will take place, 14 squadrons a year for first years.

Number of planes delivered fiscal year 1926–27, 297.

Number of planes to be delivered fiscal year 1927–28, about 300.

POLICY

(1) Attain and maintain quantity and quality superiority over neighbors. This is modified sometimes to an admission that superior quality will suffice even if quantity equality is not achieved.

(2) Attempt to build up volunteer professionals, thus cutting down turnover due to conscript system.

(3) Propaganda for air education of populace.

(4) Force State and civil institutions to grant leave with pay for refresher courses.

(5) Allow no more concentration of aeronautical industry in Po Valley, followed by gradual dispersion if possible.

(6) Nationalize aeronautical industry, increase production castor oil, investigate possibilities synthetic fuels.

(7) Particular importance attached to air bases and organizations in Sicily and Sardinia.

(8) Maintain nucleus of airships for service with navy; these will not be large but built for Mediterranean service.

(9) Propose placing A. A. artillery under air command.

(10) Look to offensive and defensive chemical warfare.

NOTE.—In general, the national defense looks to the air service as the first line, with army second. Particular watch is kept upon France and Yugoslavia. So far as building program and acquirement of sufficient trained personnel is concerned it appears that small increase is being made. Maintenance at present state is a considerable drain and betterment will come slowly. Personnel requirements are the hardest to meet, both in quantity and quality.

C. ECONOMIC

1. Economic estimate.

[*Source: M. I. D.*]

(*a*) ECONOMIC PENETRATION OF FOREVIGN INTERESTS

The present Government, while favoring the entry of foreign capital into Italian enterprises, and to that end removing some of the irritating regulations incident to investments, and holding out encouragements of a minimum taxation, nevertheless has by decree in a number of instances, provided that majority interest and control shall remain in Italian ownership, and this was made very evident in American loans to Italian industries, which are regulated by the Minister of Finance.

(*b*) PRINCIPAL ECONOMIC INTERESTS OF NATIONALS IN FOREIGN COUNTRIES

Unlike some of her European neighbors, Italy has directed her colonial and trade expansion activities within rather restricted regions adjacent to the Mediterranean Sea. Her colonial possessions are relatively poor and unimportant, her people are disinclined to settle in them, her schemes have been costly in lives and in lire, and her penetration in such phase of expansion has brought a negligible economic return.

Italian capital has not measurably penetrated into territory of foreign nations, and it has not been a factor of control in the regions to which her people have emigrated. While her nationals have gone in great numbers to other countries, Italian activities therein have ever been in small business and in wage earnings, and Italian capital has not followed them. Economic control has not thus been sought, and the whole aim has been the accumulation of funds, the aggregate of which remitted to Italy has enriched the national treasury and brought to Italy real economic benefits. The most important and active Italian economic penetration has been, in order of importance, in Albania, Austria, and Greece.

(*c*) BEARING OF ECONOMIC SITUATION ON INTERNATIONAL POLITICAL SITUATION

Some of Italy's political activities in recent years having a connection with her economic needs, seem of an impetuous character, and show an apparent lack of definite consideration of possible reactions in other countries, or of a current interpretation of situations influencing the Italian action.

Her adventures into Asia Minor, following the war with Turkey in 1912, and subsequently, after the World War, in the same region, taken independently of the other Allies, as well as her Albanian venture, resulted only in complete disappointment, the frustration of such plans for economic and territorial expansion, and her forced withdrawal from those regions.

One of her most pressing economic problems, to which she is devoting much thought and effort along political lines, is to obtain abroad suitable destinations for her surplus population, under proper living conditions, whereby a remunerative return for labor may be a source of large economic benefit to Italy.

It is not always easy to determine whether Italy's moves in her international relations are influenced in greater measure by her need for economic betterment, or to enhance her relative standing in the political world.

(D) GENERAL CONCLUSIONS

The position of agriculture and industry, the state of the Nation's public and private finances and the demographic problem of emigration are Italy's greatest handicaps to economic independence.

Italy is very much hampered economically by her lack of raw materials. In fact it condemns her to being a relatively poor country, and filters her war-making power. First, she is not self-supporting in food; secondly, she lacks fuel for her power and her war furnaces and iron ore for her smelters. Despite these great handicaps, she is economically solvent, so to speak, and she has succeeded in greatly expanding her industry since the war. Many articles are now manufactured that were formerly imported. Any increase in her industrial forces, of course, increases her war-making power, provided she can secure the raw materials. What she now needs is to develop an interior market. Her people are not great consumers.

To-day Italy is organized on the basis of a fundamental policy which fuses all the material forces of the nation into a single dynamo of production. An intricate and colossal economic machine is being developed with the object of obtaining economic equilibrium for 42,000,000 people. Much depends upon the success with which the economic machine maintains equilibrium, and upon the sacrifice of individual interests which the Italian people are called upon to make.

At the present Italy is passing through an economic crisis due to the readjustment of her finances. The cost of living is extremely high which is always a grave symptom in any State at any time. But in this matter the régime demands of its citizens an obligatory optimism. The masses of the people live under parsimonious conditions which it would be difficult to restrict any more, but thanks to

their atavistic habits and to their climate, they consume relatively little, and they are not alcoholic.

Italy is prolific in mass powers, and has the ability to organize and equip them. Her accretements during the war show the possibilities inherent in her national industry, and it is safe to assume she could equal if not better the efforts made during the last war. Her industries and her people are more disciplined than heretofore.

From an economic standpoint, Italy can not alone wage a war of any magnitude. She must have as allies a country or countries which will insure the supply of raw materials, fuel, and food. Economically, she would be a liability rather than an asset to her allies, except for her abundance of man power.

The maintenance of peace is of distinct benefit to Italy. Struggles of continental proportions in either hemisphere are certain to depress indefinitely, to impair gravely, the prospects of progress for any country so situated as Italy. Her tourist traffic and the prosperity of her sons and daughters laboring abroad reflect promptly the consequences of serious trouble in either hemisphere.

If Italy is to support her population she must at all costs maintain peace and fit herself into an international economy rather than attempt to make herself a self-sustaining economic unit.

Finally, Italy, while poor economically, is in a better position to-day to make war than she has been for years because her industries are more numerous and better organized and her people are better disciplined and are greater producers. She must, however, either make great anterior provision of raw materials or be assured of powerful allies or friends upon whose primary resources she can draw.

NOTE.—In connection with Italy's endeavor to overcome her lack of native coal and oil, and to thus remove one of the greatest, if not the greatest, barriers which separates her from economic independence, the Italian efforts toward hydroelectric development should be noted. The regions by far the best suited for this development are the plains at the north which are fed from the Alps, and here it is that this development is largely concentrated. Strategically, however, this area has the great disadvantage of being in close contact with four foreign states. One of the basic reasons for the intense development of Italian aviation is to provide for the defense of this area, with its numerous central power stations.—Ed.

JAPAN

A. NAVAL

1. Completion of ships.

The cruiser *Aoba* which was under construction at the Mitsubishi Dockyards, Nagasaki, was completed on September 20, 1927, and the following officers assigned to her:

Captain, commanding; commander, executive officer; 4 lieutenant commanders (gunnery officer, navigator, torpedo officer, and communication officer); lieutenant, division officer; 2 lieutenants (junior grade) on board; 4 ensigns on board; commander (engineer), chief engineer; lieutenant commander (engineer), lieutenant (engineer), lieutenant (junior grade) (engineer), division officers; lieutenant (junior grade) (engineer), ensign (engineer), on board; lieutenant (medical), medical officer; lieutenant (paymaster), supply officer.

Submarine *I–55*, which was under construction at the Kure Navy Yard was completed on September 5, 1927, and the following officers were assigned to her:

Lieutenant commander, commanding; two lieutenants (torpedo officer, navigator); lieutenant (engineer), chief engineer; ensign (engineer), on board; two special ensigns on board.

NOTE.—The "Aoba" is of 7,100 tons (standard), mounts six 8-inch guns, four 21-inch torpedo tubes, and has a contract speed of 33 knots. She has one sister ship, the "Kinugasa." The "I–55" is of 1,400 tons surface displacement and a surface speed of 20 knots.—ED.

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2. *Recent Bungo Channel maneuvers.*

MISSION

Fleet concentration, to be witnessed by the Emperor, and marked by the sinking of the old cruiser *Chiyoda* and the old destroyer *Hatsuharu* by a combination of gunfire and aerial bombing.

FORCES

The combined first and second fleets, plus the new carrier *Akagi*.

OPERATIONS

The fleets were assembled in Saiki Bay (Eastern Kyushu) when the Emperor arrived on the battleship *Yamashiro*. That night there was reported to have been a demonstration of "searchlight, night signaling and night gun firing," all vessels, however, being at anchor.

On the next morning planes from the carrier *Akagi* made an aerial demonstration about the *Yamashiro*, after which all vessels got underway for Bungo Channel—25 or 30 miles away.

There were very few details of the operations in the press, but apparently the forenoon saw the *Chiyoda* survive a "fierce gun attack" by capital ships. In the afternoon, the *Hatsuharu* was attacked by plane squadrons and also by gunfire on the part of the battleships *Ise* and *Hyuga*, and was eventually sunk.

After nightfall the *Chiyoda* was sunk by the combined guns of both heavy and light ships, *Nagato*, *Mutsu*, and *Kako* being men-

tioned as taking part in the attack. Planes assisted the firing vessels by dropping "illuminating bombs" during the gunfiring.

NOTE.—The Japanese Emperor recently held a review of the combined fleets. It is hoped to be able to include notes on this review in the next Bulletin.—ED.

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3. Officers completing special courses.

The following officers completed special courses of training:

Nov. 27, 1926: Gunnery, postgraduate course (1 year)—lieutenant	1
Nov. 27, 1926: Gunnery, advanced course (1 year)—lieutenants	23
May 28, 1926: Gunnery, ordinary course (6 months)—2 lieutenants (junior grade); 71 ensigns	73
Nov. 27, 1926: Gunnery, ordinary course (6 months)—4 lieutenants (junior grade); 64 ensigns	68
Nov. 27, 1926: Torpedoes, ordinary course (6 months)—6 lieutenants (junior grade); 135 ensigns	141
Nov. 27, 1926: Torpedoes, advanced course (1 year)—lieutenants	35
Nov. 27, 1926: Communication, advanced course (1 year)—lieutenants	10
Nov. 27, 1926: Mechanical mine, special course (1 year)—lieutenant	1
Mar. 29, 1926: Naval medical school, advanced (1 year)—lieutenants	9
Nov. 25, 1926: Naval medical school, ordinary (6 months)—18 lieutenants (junior grade); 3 ensigns	21
Total	382

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4. Training and instruction of personnel.

The naval academy is located at Etajima, an island in the Inland Sea, just off the entrance to the harbor of Kure.

Candidates for line cadet at the naval academy are appointed by the Minister of Marine from the 11 prefectures. After a rigid physical examination, they are admitted on a certificate of having successfully finished the secondary or middle school course. The age limits for admission are from 16 to 19; 130 cadets are admitted annually for each class in the month of April. The course is three years, at the end of which they are appointed midshipmen with a 12 months' cruise abroad. At the completion of the cruise they are commissioned ensigns and sent to the fleet. In 1926, 2,105 candidates applied for appoinment. Of this number 403 failed physically and 130 were admitted, or 6 per cent of the applicants.

In 1926 the enrollment at the naval academy was as follows: First-year class, 130; second-year class, 122; third-year class, 130; total, 382.

The engineering school is located at Maidzuru. Engineer candidates for cadet engineers at the engineering school are appointed in the same manner as cadets at the naval academy. Age, scholastic

and physical requirements for admission, length of course, promotion to midshipmen and ensign are the same as for the naval academy. In 1926, 551 candidates applied for appointment as cadet engineers, 143 were rejected physically and a total of 50 were accepted.

In 1926 the enrollment at the engineering school was as follows: First-year class, 50; second-year class, 47; third-year class, 44; total 141.

The paymaster school is located at Tokyo. Candidates for cadet paymaster at the paymaster's school are appointed in the same manner as cadets at the naval academy. The scholastic and physical requirements for admission, length of course, promotion to midshipmen and ensign are the same as for the naval academy. The age limits for admission, however, are 16 to 21. In 1926, 419 candidates applied for appointment as paymaster cadet; 112 were rejected physically and a total of 18 were accepted. In 1926 the enrollment at the paymaster's school was as follows: First-year class, 18; second-year class, 20; third-year class, 20; total, 58.

Appointment as ensign in the pay corps is also made direct from civil life from graduates of colleges who are under 27 years of age. They then spend one year at a school of application.

The medical and pharmacy school is located at Tokyo. Candidates for the medical and pharmacy corps are appointed from those having diplomas in medicine or pharmacy. They are first sent to the naval medical school for one year and afterwards to a naval hospital for one year and for six months, respectively. At the end of this course they are commissioned. Total for 1926, 30.

Commissions in the medical and pharmacy corps may be given without the courses outlined above to graduates of foreign medical colleges and to graduates of a few domestic medical colleges recognized by the Government.

The gunnery school has been located at Yokosuka since 1906. It is in charge of a rear admiral, the executive officer being a captain. The instruction staff comprises 36 officers, 2 civilian professors of physics and chemistry, 28 warrant officers and about 100 petty officers.

For the study of matériel and instruction of personnel there is the following equipment:

Battery of broadside guns of 4.7, 5.5, and 6 inches.

A turret mounted on a concrete base with two 12-inch guns.

Antiaircraft battery with searchlights.

Fire-control installation complete.

Range finders of all types.

Rifle range.

There is always attached to the gunnery school for practical drills and instruction 1 capital ship, 1 first-class cruiser, 3 to 4 destroyers, 2 torpedo boats, and usually 1 or more submarines.

The teaching staff is divided as follows:

	Instructors
Gun fire and ballistics	5
Ordnance material and ammunition	13
Range finders and fire-control apparatus	5
Fire control exercises	2
Antiaircraft defense and landing force	3
Electrical machinery, motors, dynamos, etc	3
Mathematics, physics, chemistry, explosives	6
Special studies	1

Following is an outline of the courses and the number of students enrolled in 1926:

OFFICERS

	Length of course	Number of students
Ordinary course (Obligatory for all junior line officers.)	4 to 6 months	74
Superior course (A preparatory course for officers who are going as gunnery officers of capital ships or cruisers.)	1 year	23
Special course (For officers who are pursuing any special line of duty.)	1 year (about)	1
Merchant marine course (For merchant marine officers and reservists.)	4 to 6 months	168

ENLISTED MEN

Ordinary course (For nonrated men and lower petty officer ratings.)	6 to 7 months	700
Superior course (For men of higher ratings.)	10 months	360
Range-finder course (For range-finder operators.)	8 months	130
Total		1,190

The policy of instruction in gunnery is, first, that all junior line officers must take the ordinary course; second, that all perspective gunnery officers must first take the superior course and, third, that all enlisted men in the gunnery ratings are put through the gunnery courses before assignment to duties aboard ship. The thoroughness with which these courses are carried out is characteristic of the Japanese and undoubtedly contributes toward standardized methods in all their gunnery work in the fleet.

The torpedo and radio school is located at Nagaura, a section of the Yokosuka Navy Yard. It is in charge of a rear admiral, with a captain as executive officer and a commander at the head of each of the following sections:

First section, torpedoes; second section, mines and mine sweeping; third section, radio.

The instruction staff consists of 40 officers, 30 chief petty officers, and about 100 petty officers. The same vessels which are assigned to the gunnery school for drill and instruction act in the same capacity as regards the torpedo and radio school.

The school is equipped with all types of torpedoes, mines, and radio apparatus for the instruction of students.

Following is an outline of the courses and the number of students enrolled in 1926:

OFFICERS

	Length of course	Number of students
Ordinary course (Obligatory for a junior line officer.)	6 months	72.
Superior course (A preparatory course for officers who are going as torpedo officers or radio officers of cruisers or capital ships.)	1 year	30 torpedo. 12 radio.
Special course (For officers who are pursuing any special line of study.)	do	4.

ENLISTED MEN

Ordinary course (mines and torpedoes) (For nonrated men and lower petty officer ratings.)	6 months	A total of 1,170 men.
Superior course (torpedoes) (For men of higher ratings.)	9 months	
Superior course (mines) (For men of higher ratings.)	6 months	
Ordinary course (radio) (For men of lower ratings.)	1 year	
Superior course (radio) (For men of higher ratings.)	2 years	

The submarine school is located at Kure. It is in charge of a rear admiral with a captain as executive officer and a captain or commander as assistant executive officer. The instruction staff comprises 16 officers.

Three divisions, or a total of nine submarines, are attached to the school for instruction purposes. The courses include torpedoes, mines, radio, Sperry compass, sound apparatus, and submarine handling.

Following is an outline of the course and students enrolled in 1926:

Officers	Length of course (months)
Ordinary course (for ensigns and lieutenants who have completed the course at the torpedo school)	4
Superior course (for lieutenants and lieutenant commanders who have completed the ordinary course and for officers ordered to command of a submarine)	3
Special course (for lieutenants and lieutenant commanders who have completed the superior course and for officers ordered to command a division or squadron of submarines)	6
Engineering course (for engineer ensigns and lieutenants)	6
Total number of officers enrolled in the above 4 courses in 1926, 30.	
Secondary course (for deck officers, deck petty officers, and engineer petty officers)	6
Total number enrolled in this course in 1926: Officers, 100; men, 494.	

The aviation school and training station for heavier-than-air craft and dirigibles is located at Kasumigaura. The training in captive balloons is carried out at Oppama.

All pilot training with the exception of *F–5* pilots is done at Kasumigaura. The course requires nine months and two classes, overlapping, are in training at one time. In general, two enlisted men are trained for every one officer. The average number of students (pilots-officers and enlisted men) undergoing training at one time is 90, divided into two classes. The class is divided into two parts, one half begins training in sea planes and the other half in land planes. During the entire course each pilot receives about 120 hours flying.

Upon completion of the course here the pilots are assigned to operating stations and continue along a special line, depending on the kind of squadron. Pilots assigned to *F–5* squadrons are taught to fly *F–5's* when they report to the squadron.

In addition a school is conducted in engineering. About 5 officers and 150 enlisted men attend this school. There is no flying in connection with this course. The students spend much time on practical work in well-equipped shops and come out of the school excellent mechanics or riggers.

The higher naval college is located in Tokyo. This school has as its purpose the higher education of officers of the line and engineer corps of the navy.

The curriculum is determined by the Chief of the Bureau of Education, who submits it to the Minister of Marine for approval.

The school is in charge of a vice admiral, who has directly under him three captains and three commanders. These officers teach tactics, strategy, and general staff work and they direct and supervise war games.

The other courses are taught in some cases by civilian professors or by officer specialists, who are not attached to the school for this duty alone.

The instruction is divided into four categories:

General staff course, navigation course, engineering course, special course.

General staff course.—This course prepares officers to fill the duties of the general staff, and, later on, for high command. Twenty officers are taken for this course each year from lieutenant commanders and lieutenants who have completed two years' sea duty since last promotion and have qualified either in gunnery, torpedoes, or submarines.

The candidates for this course are subject to certain qualification of health, character, and intelligence and have to pass an examination.

The course is two years, divided as follows: First year, a general technical course, and a course in general staff duties; second year, strategy, tactics, game board, and naval history.

NOTE.—After the fleet maneuvers each year a critique which lasts for several weeks is held at the higher naval college and it is attended by all flag officers and commanding officers from the fleet.

Navigation course.—Length of course, two years; students are lieutenants who are required to pass an examination; number of students, 1926, 12.

Engineering course.—Length of course, two years; students are engineer lieutenants who are required first to pass an examination; number of students, 1926, 22.

Special course.—Length of courses vary from one to four years. Students are officers of various corps and grades who are to undertake advanced studies of different subjects. The principal courses are engineering, languages, powder and ballistics, radio, and aeronautics.

Students in the above special courses spend most of their time at leading technical universities. Number of students in 1926: Line, 32 (including 12 foreign-language students); engineering, 22.

Naval, engineer, and ordnance constructors.—Commissions in these corps are given after competitive examinations to candidates under the age of 28 years, who are graduates of certain technical colleges. The initial rank given them is in accordance with their age, experience, and general qualifications, and may be as high as commander. In 1926 the following numbers were appointed to each corps: Naval constructors, 5; engineer constructors, 3; ordnance constructors, 7.

Instruction of officers in service—Line officers.—On board every cruising ship the commanding officer assigns annually to each officer a professional subject for study and the preparation of a report on paper. Each commanding officer is likewise assigned a subject by the commander in chief. These annual reports are examined and passed upon in the fleet and the best of them are forwarded to the Minister of Marine for commendation.

"Brevets" or specialties.—Officers who have completed the courses at the gunnery, torpedo, aviation, or submarine schools are given an "ordinary brevet" in these specialties. A "superior brevet" is given in these specialties after officers have completed certain duties afloat or in active service. A "special brevet" is given only for gunnery, torpedoes, radio, and submarines. A "staff brevet" is given to officers completing the staff courses at the higher naval college.

Similar brevets are given engineering officers and to ordnance, engineer, and naval constructors, hydrographic engineers, paymaster, and medical officers.

Table showing the percentage of line officers in grades from ensign to captain who have brevets in specialties follows:

	Gunnery	Torpedo	Navigation	Submarine	Aviation	Staff	Special
	Per cent	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*
Captain	36	34	16	2	2	28	25
Commander	28	31	14	2	1	25	26
Lieutenant commander	27	25	12	7	4	20	28
Lieutenant and Lieutenant (junior grade)	27	25	11	10	7	15	30
Ensign	.....	.....	.....	6	5	.....	.....

During 1926 the following officers and men, including naval students, cadets, and midshipmen, were enrolled in schools or under instruction afloat:

Cadets and midshipmen:		
Line cadets (naval academy)	382	
Engineering cadets (engineering school)	142	
Paymaster cadets (paymaster's school)	58	
Midshipmen on 12 months' cruise	173	
Total (corresponding to our Naval academy)		755
Naval students: Medical and pharmacy school		30
Commissioned officers:		
Gunnery school	226	
Torpedo and radio school	128	
Submarine school	130	
Aviation training (Kasumigaura)	60	
Higher naval college	54	
Total		598
Grand total		1,383

Enlisted men accepted for schools, 1926:	
Gunnery school	1,190
Torpedo and radio school	1,170
Engineering school	1,506
Paymaster's school	150
Submarine school	494
Aviation school	484
Total	4,994

Seamen's training barracks are located at Yokosuka (capacity 3,000), Kure (capacity 1,600) and Sasebo (capacity 1,600). Recruits are received at these barracks and given a four months' training course before being assigned to ships. Each of these barracks has a signal school where men are given elementary and advanced courses in signaling.

SUMMARY

In the education and training of officers and men, the Japanese are thorough, and in the aggregate devote more time and proportionately more funds to this purpose than we do. In addition to the regular schools which officers attend in Japan, many are sent abroad for extended periods to attend technical universities and to study languages. There is no doubt, however, but that the amount of time spent by many officers in schools ashore is done at the sacrifice of practicable sea experience and that there is a strong tendency to perfect themselves in the theoretical side of their profession at the expense of the practical side.

In the case of the enlisted personnel, the policy of thorough training of petty officers and special ratings at the gunnery, torpedo, engineering, and submarine schools before assignment to duty aboard ship undoubtedly contributes to efficiency and standardization of methods.

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5. *Efficiency and morale of personnel.*

GENERAL EFFICIENCY

The personnel of the Japanese Navy is the most efficient organization that exists in Japan, in quality, training, progressiveness, and intelligent devotion to duty. It has absorbed and developed to a point of efficiency more western ideas and methods than any other instrumentality in Japan, whether of a military nature or otherwise.

The personnel of the navy, both officers and men, is carefully picked from the available sources of supply. The officers are as well educated, at least in the theoretical aspects of their profession, as those of any foreign service. The men are specially selected from conscripts (Japan has universal military service) for their physique and intelligence, and the petty officer ratings spend a large part of their time in schools. Officers and men are assiduous workers and indulge in very little recreation. It may be assumed that their general efficiency is limited only by their racial limitations and the efficiency of the instruments with which they work.

In forming a comparative estimate of the degree of efficiency which has been attained by the personnel of the navy, certain basic traits of character of the Japanese as a race must be given consideration, as these traits are sharply reflected in the personnel of the navy.

In the first place the Japanese is essentially nonindividualistic. The initiative of the individual is lacking, and everything must be done after interminable conferences and conclaves. The Navy Department is consequently overorganized and the subdivision and interlocking of bureaus, divisions, sections, etc., is such that no direct

answer to the simplest question can be given, and it must be referred to many offices before the information can be collected. Division of authority, and consequently of re-ponsibility, can be seen in all their organizations. As an example, when ships of the fleet come to a naval station they pass from the command of the Commander in Chief afloat to the command of the commander in chief of the naval station. The commander in chief of the naval station is responsible directly to the Emporer and also to the Minister of the Navy. The industrial part of the naval station is under the naval technical department, which is separate from the Navy Department, but under the Minister of the Navy.

In the formulation of plans for any activity, everything is worked out in the most minute detail, but any deviation from a fixed plan requires a complete revision of the procedure previously decided upon.

Their officers generally are lacking in sea experience. It is not uncommon for a full captain not to have been to sea for six or eight years. Junior captains before being assigned to a command usually have a three-month course on a seamanship training vessel (old cruiser).

The general efficiency of the personnel may be summarized as follows:

OFFICERS

(1) Selected from excellent material.
(2) Thorough, frugal, and hard-working.
(3) Well educated in theoretical subjects.
(4) Lacking in initiative.
(5) Lacking in sea experience.
(6) Possessing the racial characteristics of being unable to make up their minds quickly or to individually assume responsibility.

MEN

(1) Selected from the best of the conscripts.
(2) Larger in physique than the average Japanese.
(3) Well trained.
(4) Inferior in basic intelligence, education, and initiative as compared to our men.

MORALE

The morale of the officers and men is high. They have an almost fanatical patriotism and allegiance to the Emperor and a racial regard for higher authority. The officers are inclined to be untidy in their uniforms and general appearance, but the enlisted men, on the other hand, are exceptionally well uniformed and are smart in saluting and general bearing.

In time of war their bravery, devotion to duty, and willingness to die for country and Emperor may be unquestioned. In defeat, however, they lack the western determination to "try again," and are always ready to commit professional, if not actual, hari-kari to save face. Recently the commander in chief of the combined fleets submitted his resignation to the Emperor immediately following the sinking of the destroyer *Warabi*, irrespective of whether or not any blame attached to himself.

In time of war the surest way to encompass their defeat will be to do what they least expect. This is axiomatic in any military strategy, but will be especially effective with the Japanese.

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6. Comments of Admiral Saito on arms conference.

Upon his arrival at Kobe, from the recent arms conference Admiral Saito is reported by the *Osaka Asahi* as having made the following statements to representatives of the press:

While I deeply deplore the fact that the conference broke up, no rancor was created; and I am very glad to say that we separated with the best of feeling. The attitude of Japan was based from beginning to end on the idea of real limitation, and I believe that the justice of our contentions was appreciated by other powers as well as by the United States and Britain. While it is said by certain persons that the conference was broken up by the bargaining of the other two delegations, I am not of this opinion. The facts are that the demands of each power were fundamentally different from the demands of the other powers, but each power could to a certain extent support its own contentions with proper reasons. Neither do I confirm the view that the discussions of the conference were too technical. In any event, the conference served to throw light on the position of each power, and will prove to be of great value whenever another conference is held. No one can tell when such a conference will be called, but it can be held whenever each country is willing to have it held.

After his arrival in Tokyo, Admiral Saito (*Hochi Shimbun*) said:

Even though the conference was unsuccessful, I can not believe that the powers will engage in a naval competition. As the United States is at present weaker than Japan, she will probably build a few ships; but it is unlikely that Japan and Britain will build beyond their present program even though no understanding was reached. At the conclusion of the conference, the delegates expressed the hope that a conference would be held before 1931. This arose from a desire to have some agreement concluded before it would be made difficult by new building programs. We reached no formal agreement, but we succeeded in understanding each other thoroughly.

NOTE.—*Admiral Saito was the senor member of the Japanese delegation to the recent three-power conference. The above remarks were given wide publicity in this country and in England and considerable significance was attached to them. Japan was bitterly disappointed in the failure of the conference and she feared that it would result in a naval competition in which she could not compete for economic reasons. See the October "Bulletin" for Japanese press comments on the results of the conference.*—ED.

B. AERONAUTICAL

1. Increase of air squadrons.

The following is quoted from the Tokyo *Nichi-Nichi:*

As the navy has no big new building items for the next fiscal year, it is expected that they will vigorously push their advocacy of 17 squadrons for the naval air force to be realized by 1929-30. Although the *Kaga* and *Akagi* are nearing completion, the naval air force on shore at present consists of no more than 13½ squadrons, which compares very poorly with the air strength of other powers. The naval authorities hope to create 10 more squadrons by 1932-33, in addition to those referred to above.

NOTE.—The standard strength of an active squadron is 16 planes; of a training squadron, 24 planes. Japan now has 640 planes and should have (according to above schedule) 864 planes by 1930 and 1,435 by 1933 or 1934.—ED.

C. POLITICAL

1. Anti-Japanese riots in Mukden.

Serious anti-Japanese riots started recently in Mukden. Japanese were stoned in the streets, property damaged and a boycott against Japanese goods instituted. Strong protests by the Japanese Government to Peking has had some effect but anti-Japanese agitation continues in the Mukden area and has spread to Kirin.

These agitations are ascribed to the following immediate causes:

(1) The dispatch of Japanese troops to Shantung.

(2) The announcement of Premier Tanaka that he would adopt a "stronger policy" toward China.

(3) The two conferences of Japanese diplomatic, consular, and colonial officers held in the last two months at Tokyo and Dairen on Asiatic policy and China policy in particular. These two conferences were seized upon by certain elements in China as example of Japanese interest to take aggressive steps in China.

The Japanese press has been greatly agitated by conditions in Mudken and universally blame the Government for what is called its blundering policies.

NOTE.—Since the above was written, Japan has withdrawn a portion of her troops in Manchuria.—ED.

MEXICO

A. POLITICAL

1. Attempted coup d'état of Gomez-Serrano supporters.

On the night of October 2 a coup d'état was attempted in Mexico City by the antireelectionist's forces back Gomez and Serrano.

Gen. Hector Ignacio Almada, who until two days before, was chief of staff of Gen. Eugenio Martinez, who commanded the forces in the valley of Mexico, ordered the Seventh, Thirty-sixth, Fiftieth, and Forty-eighth Battalions and the Second Field Artillery to revolt against the central Government. These regiments, under the command of their respective commanding officers, moved from their headquarters and concentrated in Texcoco. In addition to the artillery mentioned, the Fiftieth Battalion carried with it eight 37-mm. Hotchkiss guns with about 300 shells per gun. The forces were well equipped with ammunition and provisions. The Fiftieth Battalion was commanded by Gen. Antonio Madina and the Forty-eighth Battalion by Gen. Oscar Aguilar. Troops on arrival at Texcoco went into camp.

About dawn on the morning of October 3, the rebellious troops were located by Government planes and at about 10 a. m. were bombed and machine gunned by planes from Valbuena Flying Field, with practically no casualties resulting.

An uprising took place at the same time at Torreon. There the Sixteenth Battalion, which had just been transferred to that place from the State of Veracruz, rose in revolt. This unit was soon defeated by troops loyal to the central Government. The rank and file were disarmed and every officer of the regiment is reported to have been executed immediately.

On the evening of October 3, the rebels, under General Almada, encamped at Texcoco, commandeered trains of the Interoceanic Railway, and moved toward the State of Veracruz. They detrained near Perote and on October 4 made junction with General Gomez, who had escaped from Mexico City and was near Perote in command of the Seventy-ninth and Twenty-ninth Cavalry which had been stationed in Veracruz and had declared for Gomez.

On October 1 both Serrano and Gomez were in Mexico City. General Gomez had an engagement to go to Pachuca for Sunday and General Serrano was to speak in Puebla on the same day. On Saturday afternoon they were both warned by their friends that orders had been issued by the President for their arrest. Gomez made for Veracruz and, as reported above, made his appearance on October 3 in Perote, Veracruz. General Serrano went to Cuernavaca.

A friend of mine, Mr. Dawson, happened to be in Cuernavaca for the week end. He saw General Serrano about the streets on Sunday night in that place in the central plaza, talking and drinking at various places and apparently unconcerned over his safety. His attitude is explained now by the fact that General Dominguez, commanding the forces in Cuernavaca and vicinity, was his sworn friend and was ready to join him in the proposed coup d'état. With

Serrano were 13 of his political advisors and leaders. The general spent that night at the house of a friend on one of the main streets of the city. At 9 a. m. on Monday morning, October 3, General Serrano and his 13 companions were arrested by army officers under the command of General Dominguez and taken to military headquarters. At 11 o'clock, Mr. Dawson, having heard that the roads to Mexico City were closed and guarded by troops, went to headquarters to obtain a passport that would enable him to travel over the road to Mexico City. He found that General Dominguez was reported to be absent and would not return until that afternoon. After much trouble he finally secured a pass from one of the officers of Dominguez's staff. While obtaining his pass he saw in the courtyard of the "jefatura" General Serrano and his friends.

They all seemed perfectly unconcerned and not worried in any way, except Vidal, the governor of Chiapas and Serrano's chief lieutenant. He was pacing up and down the courtyard like a caged lion. A friend of Mr. Dawson's, who accompanied him to headquarters, asked the staff officer issuing the pass if General Serrano was under arrest. The officer replied that he was. This gentleman requested and obtained permission to speak with the general. He told Serrano that he and Mr. Dawson were on their way to Mexico City and asked if he could deliver any messages for him. Serrano replied, "Tell them we have been arrested, but I think everything is perfectly all right." Vidal, who overheard the conversation, said: "I do not agree with you, General. Tell them that we are all going to be shot, but that we will die muy hombres" (as brave men).

Mr. Dawson was delayed until 3 o'clock in the afternoon before he was able to start for Mexico City. About a mile from Huitzilac, Mr. Dawson's car came in contact with a convoy of trucks and automobiles proceeding in the direction of Mexico City. The trucks carried about 150 to 200 officers and soldiers and in the private automobiles were Serrano and his 13 companions, one in each car, heavily guarded by officers and soldiers. Mr. Dawson was ordered to stay behind this convoy. Near Huitzilac a number of cars containing officers of the presidential staff appeared from the direction of Mexico City and halted the convoy. There was a long conversation between Gen. Claudio Fox, commanding the convoy, and the officers of the presidential staff. Finally the convoy, accompanied by the officers from Mexico City, proceeded on toward the capital. Mr. Dawson's car was stopped by a staff officer and was ordered to return to Cuernavaca, his pass not being honored. He returned to Cuernavaca and finally was able to see General Dominguez, who had conveniently returned to the city after Serrano's departure, and Mr. Dawson was again allowed to start on his trip to Mexico City. He

arrived at Huitzilac a second time and was held up by a lieutenant with a guard of troops. After a great deal of conversation and trouble he was allowed to proceed once more. This was about 8.15 p. m. Monday night. Just before leaving, Mr. Dawson was certain he heard volleys of firing in the direction of Mexico City. The next town to Huitzilac is that of Tres Marias. On arriving at this place Mr. Dawson found it absolutely deserted, not only of military but of all the civilian population. About 10 minutes from Tres Marias there is a detour from the main road to Mexico City, which is usually blocked by stones. Mr. Dawson, in passing, noticed that these stones had been removed and a great number of automobile tracks were plainly seen showing that a great number of cars had recently entered this detour. Mr. Dawson kept on the main road and arriving at the other end of the detour, noticed that the stones were still in place at that end and no signs of any cars having left from that end. Mr. Dawson arrived in Mexico City about 11 o'clock and at 2 a. m. on the morning of the 4th, a statement was issued from the presidential palace that Serrano and his 13 companions had been arrested in Cuernavaca, tried by summary court-martial, and executed for plotting against the central Government. There were various rumors about the city the next day as to where this execution had taken place. Mr. Dawson was absolutely certain that it happened on the detour mentioned above. The next day he and his companion drove up the detour and found unmistakable evidence that the shooting took place there.

It is suspected that information regarding the coup d'état was sold to the President by General Martinez, who was intimately mixed up in it and who was allowed to start for Europe the day previous to the uprising, and by General Cruz, who is head of the police force in Mexico City and is also believed to have been an intimate conspirator with Gomez and Serrano.

All remained quiet in the city of Vera Cruz. Three ships of the Navy were present, the *Bravo*, the *Agua Prieta* and the *Tampico*, the latter a coast guard vessel of the Canadian trawler type. The *Anahuac* is in New Orleans being repaired. The ships attempted to refuel and provision on Monday, October 3, but the oil companies would not give them oil until they received permission to do so from the headquarters in Mexico City. This was done as the navy has long been suspected of being in sympathy with Gomez's aspirations. However, on Wednesday, permission was received from Mexico City by wireless and the ships were refueled and provisioned. The *Bravo* sailed that night for a reconnaissance of the coast between Vera Cruz and Tampico. The *Agua Prieta* and *Tampico* remained in Vera Cruz.

The trains of both the Interoceanic and the Mexican Railroads did not run from Monday until Saturday. The Mexican line was cut by a band of rebels at Paso del Macho and the Interoceanic was in the hands of the rebels beyond Jalapa.

During the past week there has been a wholesale execution of Serrano Gomez followers. All congressmen and senators belonging to the "antireelectionista" group have been expelled from both chambers.

If the Government report of the defeat of Gomez is correct, it seems safe to predict that Mexico will be controlled by the Calles-Obregon combination for many years to come. This was the only serious opposition that has confronted them in three years and it has been warded off with almost laughable ease. All the opposition leaders are either dead or in hiding. The country has been terrified by the large number of executions. General Amaro seems to be the strongest man left in the country, who may some time in the future, dispute the leaders of the Calles-Obregon dictatorship. There seems to be no doubt that the Government forced the Gomez-Serrano group into rebellion for which they were not adequately prepared. If they had been given another month their chances for a successful rebellion would have been 70 per cent greater.

NOTE.—Since the above was written General Gomez has been captured and executed and the open revolt, for the time being, at any rate, thoroughly quashed.—ED.

PERU

A. AERONAUTICAL

1. Aviation activities.

A German, named Rudolfo Beeck, has submitted a proposal to the Peruvian Government for the establishment of a commercial passenger air service to be operated by him with Dornier-WAL, German made planes on the following routes: From Callao south along the coast to Mellando; from Callao north along the coast to Paita; from Paita into the interior to Iquitos on the Amazon. The Germans propose to use in this service three land planes and three sea planes of the type mentioned above.

In addition to the foregoing, Gen. William Faupel has advised the Peruvian Government to purchase 12 so-called observation planes of the same German manufacture and type as these mentioned above; and this proposal is said to be receiving serious consideration by the Peruvian Government, although I am informed that equally as good, if not better, planes can be bought for considerably less money from American manufacturers. Land planes of similar capacity, as those

proposed of German manufacture, and, which will cost in Germany $30,000 each, can be bought in the United States for $20,000 and German seaplanes, costing $57,000 can be bought of American manufacturers for $30,000.

I am informed that General Faupel already has two active aides and that in the process of building up a German military mission in Peru there are seven other German officers already present in Lima, more or less incognito, at least whose presence has not been announced, who will later on be appointed on the mission. Mr. Conrad Boch, a German commercial agent, who has lived in Lima for the last year and who has made extensive acquaintances in the country, has announced that the Germans care very little for the military effect of the military mission recently established; that their ultimate and principal object is to use the mission as a "wedge" for the opening up of more extensive German trade and the sale of German goods in Peru. Mr. Boch is quoted as saying that the sale of German airplanes through the influence of the German military mission is only beginning and that they expect to energetically develop German commerce in the country from the opening which this will give.

The importance of Peru as a market for airplanes is indicated by the following figures: In 1924 nothing was expended in Peru for airplanes. In 1925, $60,000 was expended for this purpose in the United States. In 1926, $140,000 was expended for airplanes—$90,000 in the United States and $50,000 in England. The amount expended this year in England was for six Avro training planes bought there by Col. Juan Leguia. In 1927 contracts amounting to $330,000 were placed for the Peruvian Government in the United States; and at the same time there is now pending the German proposal to expend for Peru $440,000 for planes in Germany for the army, and a proposal for the like expenditure in Germany by Mr. Rudolfo Beeck's company of $378,000 for commercial planes.

On the contracts placed in the United States, mentioned above, there were the following items: 6 Keystone (Huff) planes—4 seaplanes and 2 land planes, with single engines. These are to be three-passenger biplanes, using Wright-Whirlwind engines.

The contracts placed in the United States also include 4 Vought, two-seat combat planes, fitted with the same engine just mentioned; 2 Boeing training planes with the same engine; 2 Douglas bombers, fitted with the Liberty engine. The six Keystone planes, first mentioned above, are intended for the Iquitos passenger service, being organized for the Peruvian Government.

NOTE.—Peru is not the only country in Central or South America where the Germans are penetrating in aeronautical matters. Others, in particular, are Colombia and Venezuela.—ED.

RUSSIA

A. NAVAL

1. The state of the Baltic fleet.

The following was recently promulgated by Voroshilov, Soviet Peoples Commissar of Military and Naval Affairs and the President of the Revolutionary Military Soviet. (A very important position in Russia, formerly held by Trotzki and corresponding to a "Secretary of Defense," under whom would be combined the Secretary of the Navy and the Secretary of War.)

Having from July 20 to 25 taken part in a cruise and having inspected Cronstadt harbor and the region of the fortresses, I have had the possibility of becoming closely and particularly acquainted with the life and the educational military work of the red Baltic fleet.

With great satisfaction I must point in the first place to the regeneration of the Baltic fleet. Particularly in this sphere we suffered the greatest ruin in the years of the civil war. Particularly here our weakness threatened direct danger to the most important economic and political center of the Republic, red Leningrad. Our enemies did not conceal their malicious joy, seeing the destruction of the naval forces which protected the Baltic doors of the Soviet Union.

Years of hard labor which have passed since 1921, the strenuous work of a small but highly skilled contingent of specialists, the enthusiasm of the laborpeasant youths, the most valuable patronage of the All-Russian Leninist Communist Union of Youth, the ranks of red sailors, annually filled by the best members of the Communist Union of Youth and, finally, the close brotherly contact between the navy and the Leningrad proletariat, have not passed in vain. The Baltic fleet, represented by its battle and auxiliary ships, has again become a mighty fighting force, capable of showing a worthy reception to those who would try to approach, with hostile aims, the glorious city of the October revolution.

Red sailors, commanders, and political workers showed during the cruise a quite satisfactory training. Complicated evolutions and maneuvers carried out by the ships, while solving the tactical problems, were executed easily, without difficulties and delays, proving that the commanders and the crews have completely coped with the difficult task of sea maneuvers.

Frequent battle drills passed smoothly, manifesting efficient cooperation and training on the part of the crews of the ships. It is especially significant to point to the knowledge which everyone had of his own place in battle and to the speed with which the ships were made ready for battle.

The Red sailors manifested a high political class-consciousness, a clear understanding of problems standing before the Red army and navy, and their readiness to sacrifice everything for the interests of the laborers. The checking of moral stoicism during recent national alarms has given brilliant results and manifested the presence of revolutionary spirit and courage.

The armament of the ships is kept in order: the necessary cleanliness is maintained; the appearance of the Red sailors in the majority of cases is satisfactory. The general cultural level of the navy has been noticeably raised.

But in spite of the general good conditions of the Baltic fleet, I noticed a number of defects. The supply department on the ships is not satisfactory.

In spite of sufficient funds, the food of Red sailors and commanders is worse than in the army. Strict discipline during battle practice is not followed by a distinct discipline in the general life on ships. The general excellence was marred by a regrettable delay during the cruise, which was a result of insufficient attention to their duties on the part of the commanding personnel. A large number of trifling things often destroys the favorable impression from the whole. This especially concerns the coast defense, which has to strain itself to the utmost so as not to be outstripped by the navy and the artillery units of the Red army.

The importance of a strong battle-fit Baltic fleet for the Soviet Union is tremendous. It should not be forgotten that a new attack against the republic of laborers is being directed and inspired by the most powerful capitalistic sea power, England. Therefore we must be especially watchful as concerns the defense of our maritime borders.

The work carried out by the Baltic fleet must in no case leave us satisfied. The traces of destruction in Cronstadt have not disappeared completely; all defects are not yet done away with. At the same time the economic circumstances of our task improve every year. And we must double, treble our efforts. Cronstadt must become an impregnable sea fort of the Soviet Union. The Baltic Red navy must become a terror for the enemies of the Republic of Soviets! All defects must be done away with in the shortest time!

Expressing thanks to the entire personnel of the Baltic fleet and especially to the ships that took part in the cruise, the Revolutionary Military Soviet of the Union firmly believes that continuing the work for its further improvement, the Red Baltic fleet will with glory do its battle duty in the time of danger.

Long live the brave seamen of the Red Soviet navy!

NOTE.—Although the Soviet naval forces are undoubtedly gradually improving, particularly in the submarine, air force, and coast defense branches, yet it is very improbable that they could offer any serious resistance to any but a minor naval power.—ED.

B. POLITICAL

1. A new crisis for the Soviets.

Although the Russian official press tries to ignore it, the antagonism between Stalin, the leader of the Communist Party, and Trotsky, the leader of the radical opposition, is daily growing more intense. It is even thought possible that this rivalry may sooner or later lead to civil war, a development which has precedents in the history of revolutions when radical revolutionists come into opposition with the leader engaged in restoring normal conditions. Compared with this danger of a Bolshevist split the risk of a monarchist revolt in the Ukraine or elsewhere is insignificant.

Stalin, as leader of the communists, has been responsible for the political tendency in Russia since Lenin's death. His influence has strong support from the bureaucratic element, which has the greatest interest in steady, peaceful development. Any other policy would endanger the position of the communist functionaries, who as a class

have profited most by the changes in Russia. The two chief points on which the opinion of Stalin and Trotsky differ are:

a. Stalin is trying to base soviet rule on the peasant population and has stopped the economic policy which exploited the peasants in favor of industrial workers. He realizes that, as Russia's chief industry is agriculture, a satisfactory development can only be expected if agricultural exports are encouraged. Therefore, Stalin has to a certain extent favored the *kulaki* (wealthy peasants), who are in a position to furnish surplus produce for export, the small landholder producing only sufficient for his own consumption.

Trotsky insists that this policy is quite contrary to communist doctrines, which must favor industrial workers. Trotsky, who is becoming more fanatical every year, indicts Stalin for having sacrificed the town workers to the *kulaki*, who must be classed among the capitalists. As there is much unemployment in Russian industry, and wages are scarcely up to the pre-war level, the arguments of Trotsky are likely to gain him a following among the industrial workers.

b. Apart from this question of domestic politics, the ideas of Stalin and Trotsky are in conflict in the matter of foreign policy. Stalin has cut down the propaganda of the Comintern (Communist International) and practically has given up the idea of a world revolution. He refused to support radical communist groups in other countries and recommended foreign communist parties to seek influence within the trade unions and not to lose touch with the socialist labor party movement throughout Europe. The general trend of Stalin's policy was to fall in line with the former Czarist foreign policy on Asiatic and European questions and he, therefore, thought it necessary to take part in the discussion at Geneva.

Trotsky complains that Stalin has sacrificed the revolutionary ideals of the communists and is responsible for the loss of prestige to communism throughout the world by giving up propaganda favoring a world revolution. The Stalin policy failed in England and in China. Trotsky is in favor of active propaganda by the Comintern and strong financial aid for radical communist minorities in European countries. He thinks such a policy is essential for the maintenance of bolshevism in Russia, arguing that communist rule can not exist in Russia if it remains isolated much longer and, therefore, that other European nations must be won over to communism.

It is interesting to learn that Trotski is opposed to the military preparations of Stalin who fears an attack from England. Trotski insists that Russia must avoid any military conflict and try to revolutionize the other countries by propaganda and by stirring up

civil war. A conflict between Russia and other nations would in Trotski's opinion tend to rouse the nationalist spirit both in Russia and in the other countries involved and this would be a setback to the cause of communism.

The next development in the Russian situation will depend much on the quality and quantity of this year's crops. Should these fail a dangerous situation for Stalin might arise, as the peasants would attribute their misfortune to the present government and Trotski would seize the opportunity of overthrowing Stalin with the purpose of establishing a régime based more directly on communist doctrines.

NOTE.—The above is in accord with what has long been predicted, namely, that a normal government in Russia could only be brought about through internal evolution and not through external intervention. It is of interest to note that late in last October the Soviet Government indicated its desire to take part in the next session of the League Disarmament Commission, which met November 30. This, combined with Russia's partaking in the World Economic Conference at Geneva last summer, indicates the gradual trend of Soviet relations with the capitalistic world.—ED.

A further report on this subject continues as follows:

The conflict between the political parties in Russia will probably come to a head at the general meeting in Moscow next December. The party of Trotsky, Zinovieff, Kameneff, and Rakovsky has been gaining influence rapidly, and they are determined to overthrow Stalin. Trotsky's adherents are busily engaged in propaganda work among the rank and file, and attacks upon Stalin, which could not be printed in Russia, have been published in Germany by left wing comrades in the German Communist Party.

Stalin is blamed for the failure of the general strike in England and for the abortive efforts in China. He is accused of attempting to make small capitalists out of the peasants. The schism in the Communist Party has now become a matter of personal animosities, for there is little to choose between the program of Salin and Zinovieff, except that Stalin considers that the lavish measures of subsidizing revolution in foreign countries is beyond the financial resources of Russia. If he succeeds in maintaining his position, his next victim will be Bukharin, with whom he is now closely associated as head of the Third Internationale.

Stalin believes in the peasants and will not have the communism of the towns forced upon them. The Trotsky-Zinovieff section, on the other hand, would like to establish a real dictatorship of labor, not only at the expense of the heads of the few bourgeois capitalists, but also by robbing or even destroying every peasant landholder who does not fall into line. Stalin, being a practical man, is convinced that if the pace is forced, it may result in such an outburst of resistance that the leaders would lose their own heads.

Much will turn upon the meeting in December, and no one feels quite sure that Stalin will be able to withstand the storm if the opposition makes headway with the rank and file of the party. It is this schism in the party that delayed a decision regarding Rakovsky, on whose recall the French Government insisted. Stalin does not want him back in Russia and does not know where to send him.

NOTE.—It will be recalled that the Soviet ambassador to Paris (Rakovsky) was recently recalled, the circumstances of the recall being not only indicative of Soviet methods, but really comical. While on leave in Moscow, a few months ago Rakovsky, together with several other Soviet diplomats, signed a communist manifesto in which they called upon the workers of all the world to support the Soviet Government, should that government go to war with their particular country. This most exceptional conduct on the part of an ambassador caused strong feeling in France and the press demanded the ambassador's recall or a break in relations. Briand was forced to instruct the French ambassador at Moscow that the latter should quietly suggest to Tchitcherin, the Soviet foreign minister, that Rakovsky should probably be replaced. Tchitcherin refused the hint and pressure in France grew stronger until the French ambassador had to present a formal request for Rakovsky's withdrawal. Still the Soviet Government refused to act and demanded the formal reasons for this request of the French Government. These were duly furnished and Rakovsky recalled. But in departing, Rakovsky simply slipped out of Paris without calling at the Foreign Office or presenting his letter of recall. Briand, apparently, was the only serious influence, in the French cabinet, which prevented a complete break of diplomatic relations.—Ed.

SPECIAL ARTICLES

I. *Communism in China.*

[*Source: M. I. D.*]

The huge Russian experiment in China has undergone such vicissitudes and modifications, thanks to fortunate publicity, that time has partially cleared some of the dubious points. One who has followed the steps in the decline and break-up of the Nationalist régime since the violent seizure of the British concession in Hankow will have formed certain opinion of soviet successes and failures which prior to February were not possible in view of lack of precise information. In general, the disintegration of the Nationalist movement was predicted by all calm observers who held rational and experienced views regarding certain unchanging qualities of the Chinese people. Their assurance, however, was subject to moments of faint-heartedness as success after success came to Nationalist arms. The Russians had entered the movement so covertly and yet so thoroughly that the Nationalist régime was energized beyond anything formerly seen in China. Experienced observers, who at that time were wholly unaware of the stupendous efforts being exerted by soviet agencies, were frankly confused. Knowing the inherent weakness of the Chinese for accomplishing the cooperation and efficiency displayed in what for a time seemed an irresistible movement, the observers did not know how completely foreigners were the real force dissipating Cinese inertia. While the world heralded the regeneration of China, local observers were confounded but still insisted that the truths they knew of Chinese character were not to be discarded. They continued to feel sure in their hearts, even if they asserted it less boldly, that nationalism was more form than substance, as are most social, political, and military manifestations in China. So efficiently did the Russians conduct a military invasion, so expertly did they employ revolutionary tactics, so effectively did they blind the eyes of Chinese and foreigners to the actualities of the movement, that a certain degree of wavering on the part of close-up observers was inevitable. Considering the admirable propaganda campaign conducted by the Russian revolutionary psychologists, small wonder that people in America were fooled!

It was easier in November, 1926, logically to predict possible Kuomintang accomplishments than it was in the trying days of this year. When one based his predictions on the inaptitude and weak-

nesses of the Chinese for political and military organization and development, which they for centuries have demonstrated, he was more accurate than when his ideas became confused by the emotional deceptions current at the time when the Nationalist movement loomed most formidable.

Without discussing the degree of disintegration which is so well known to-day, one can now coolly return to fundamentals, accept the Chinese as they are instead of as we would have them be, and analyze the question of the extent of the Russian influences in China in the light of history and psychology as we believe it to affect Chinese action. Nobody can say who is and who is not a communist in China. To-day one can make only the roughest estimate of military strengths of moderate or radical factions. It would be folly to state whether this afternoon Feng Yu-hsiang will see fit to lop off the heads of a dozen communists or declare that the first born of all gentry not favoring communism will be thrown to the dogs. The same may be said of all leaders who have sacrificed their freedom of action by having permitted themselves to be the tools of Russian revolutionaries. We can, with a great degree of certitude, however, state that any Chinese leader will be a pendulum and swing through a considerable arc from radicalism to extreme reaction as best suits his personal aims and interests at the moment. We can likewise state that any Chinese leader will humor the whims of the people or crush their fondest aims, depending upon which course of action contributes to his strength at the time. He will be proforeign or antiforeign as best adds to his prestige. Given reasonable time for necessary face-saving adjustments, any leader then will be pro-Russian and radical or anti-Russian and moderate if he believes that the maintenance of his position permitting him to exert arbitrary power so demands.

This point is important. No Chinese leader conceives it enviable to be a servant of a party, and much less of the "people." There are some Chinese who seek leadership for the purpose of amassing wealth but generally in China, as elsewhere, position is sought for the power it brings. There is this difference, however, that Chinese genuinely think of power and relish it only as exerted arbitrarily. It is this trait of Chinese character which perhaps more than any other foredoomed the Russian experiment to failure, since the soviet system is based on rigid party discipline and constant curtailment of the power of the individual. When Chiang Kai-shek attained military supremacy almost entirly due to Russian assistance and found himself a popular figure beyond anything he had ever dreamed, he began to comprehend that the system which elevated him was based upon a limitation of powers of the individual. From the time

he first became aware of any limitation upon his exercise of arbitrary power, Chiang Kai-shek began to sever his connection with this foreign and un-Chinese political conception.

It is strongly felt that no understanding of probable developments in China is possible until one accepts the premise that Chinese nature has remained unchanged throughout the recent extraordinary events. Opportunism to-day among leaders of all groups is neither less potent nor less general than in pre-Nationalist days. Politicians and militarists do have to concern themselves more about the opinion of the people than formerly. The political faiths of leaders is no more of a fixed factor than was the allegiance of Tuchuns in 1922. While Nationalist leaders of whatever hue are toying with Russian terminology, employing foreign technique and enlisting new forces to accomplish their purposes, individualism and personal ambition are still the impelling motives in Chinese politics. A refusal to accept the premise that no abrupt regeneration has taken place in the Chinese nature closes all approaches to an understanding of what is occurring in China.

If this be true, certain traits of the Chinese may be listed which, if accurate, furnish a good index of the probable acceptance and retention of Russian ideas and influences over a long period of time. In addition to certain psychologic traits of the Chinese which are more or less permanent, there are some economic conceptions which may be expected to persist in the minds of the Chinese that will affect their susceptibility to Russian influences. Both internal and international political relations must be considered. These three factors, namely, psychologic, economic, and political, will be discussed in order.

PSYCHOLOGIC

The Chinese in difficulty will accept aid from any source. Smothering their pride, if not conceit, to an extent which Western people would not consider, the Chinese place themselves in the hands of others until the crisis is passed and then set about to destroy the foreign influence inevitably set up. In destroying the influence they have no delicacy in charging their benefactors with all the evils which exist. The quality of gratitude among Chinese is almost nonexistent. The Russians are the most recent bête noirs and may be expected to be charged with the responsibility for whatever chaos exists.

The Chinese, as much as any other people, like to manage their own affairs in their own way. The Chinese way, in whatever activity we may consider, is the best way—demonstrable proofs to the contrary—and will ultimately persist. Individuals and groups

momentarily will accept with enthusiasm a wholly foreign idea or method but the most inevitable reversion to the native conception shortly follows. This generalization holds as to foreign clothes, foreign education, strange political ideas, or the operation of a railway. The Russians brought efficiency into the Kuomintang party; built up a remarkable fighting machine and governing group. The Chinese accepted it with profound admiration, and immediately set about to destroy the creature which, after all, was not Chinese.

The Chinese present a confusing mélangé of the practical and the visionary. They enjoy philosophizing more than doing. They all, especially the southerners, enjoy toying with ideas. Since the height of enthusiasm for the educational advantage brought by Christian missionaries—novel western ideas—which enthusiasm gradually has been subsiding, nothing so captivated the speculative Chinese intelligentsia as the utopian dreams so fanatically expounded by the new missionaries from Russia. The stolid northern Chinese neither understood the Russian theorists nor were able to disassociate their enthusiasm from a new Czarist scheme of expansion, of which they had experienced many. But socialistic theories captivated the Cantonese and the joys of playing with new ideas swept over the south in a way which dumbfounded westerners. Christian missionaries found their ideas and their works old fashioned. In spite of their sympathy for what they naively believed to be the results of their own altruistic efforts, they found their ideas gradually replaced with the newer ones and themselves classified as purveyors of bourgeoisie propaganda and agents of imperialistic designs. The Chinese practical sense was not offended by the Russian intrusion since Russian material assistance closely followed their theories. The Boxer indemnity was widely advertised as being deflected to the payment of long overdue salaries in the universities of the North; employment with good pay was given to the new-styled convert; war materials were available to those who were more aggressive by nature.

However, equally true of the Chinese in their enthusiasm for playing with new theories is their tendency to drop them when they are foreign to Chinese nature.

Russian idealogy, like a popular air, was overdone and is now clearly sickening to a large number of Chinese. This does not mean that the Russian imported ideas have run their full course, but there are many evidences that the intelligentsia who originally popularized them are now weary of the dizzy sensation. Plainly, many influential Chinese are fed up with the senseless repetition of meaningless Russian patter.

The Chinese weakness for large-scale cooperation in any cause; their lack of genuine revolutionary spirit in which the individual sacrifices himself for the cause; an inordinate mutual suspicion and

jealousy which exists among all classes of Chinese (no Chinese ever speaks approvingly of another unless his interest is tied up with the other or unless the subject has passed into history); Chinese desire for arbitrary power but difficulty with which they submit to any form of discipline—these traits are well known and frequently have been mentioned by the Russians as obstacles to the accomplishment of their objectives.

ECONOMIC

The Chinese are a nation of traders. All the Russian economic theories regarding the limitation of buying and selling among individuals are offensive to Chinese. If the criterion of the bourgeoisie mentality is the desire to benefit individually from personal efforts, no Chinese can be classed as a proletarian. The desire for private ownership is a pronounced trait. There are Chinese inordinately poor, there are oppressed classes, there are masses on the verge of starvation. These create undoubtedly a huge population ripe for discontent and violence, but these are not proletarians in the Russian sense and never will be. Chinese individuals in the oppressed masses do not by nature conceive of contributing the proceeds of their efforts to the community. Individual effort for personal gain in the long run will be the impelling motive for Chinese action. Hungry coolies have by their efforts risen to be tuchuns, and the generality of Chinese coolies would reserve the system whereby the lucky individuals might enjoy the selfish delights and benefits of a sudden rise to high position. Every No. 1 houseboy is a petty tyrant and every coolie who suffers under him longs only for the day when he, too, may be a tyrant. The elimination of tyrants is a fond desire of all Chinese but not the elimination of the system permitting tyrants. Chiang Kai-shek's misuse of power is typical of this trait. The civilian members of the Hankow Government whose careers run to the exerting of power over mild-natured militarists rather than commanding troops themselves, are no exception to this rule. Russian theories are incompatible with aspirations for individual power and gain.

The agrarian situation in China is not believed to be favorable to the Russian experiment. The Russian economists claim that in the south a great part of the land is held by large landholders. This is not true in the north, and has formerly been untrue generally over China. The leaders in Hankow who at the present moment are denouncing their erstwhile mentors state that China is a country of small landholders and has no agrarian problem crying for solution. This view is probably correct in spite of the widespread peasant brutalities in Hunan which the Russians pictured as a natural expression of the masses against exploitation. It is believed that the

excesses in Hunan were the result of a relaxation of all authority which permitted the release of animal passions of very ignorant and incited masses and the free play of some of the Chinese natural traits mentioned above. Hunan is proof of the existence of the more unwholesome traits of the Chinese, traits incidentally incompatible with communist theories, rather than of a genuine mass demand for needed agrarian reforms. The Hunan developments have damaged the Russian cause all over China.

In spite of the continuing slogans regarding imperialistic countries, there are growing evidences that the destruction of imperialist commerce has brought only hunger and suffering to some millions of people who benefitted from foreign trade. This effect can not long be hidden from the more practical Chinese people and ultimately the blame for their distress will be shifted to the Russians and the communist party in China. This is now being widely done.

POLITICAL

As mentioned before, the soviet system of party government is based upon the dominance of a small group and implicit obedience of all the rest. The military leaders are nothing; the civilian bosses everything. In China, power always has resided in the group which controls the troops. In crises the power ultimately resides in the men who command the troops. Throughout Chinese history commanders of troops have become the emperors and these in turn have been at pains to poison their too successful subordinates in recognition of the principle that the strong man rules. The Chinese soldier will only temporarily subordinate himself to the civilian thinker and soldiers are not the type to accept the unnatural communist theories of the supremacy of the weaklings.

Assuming the Chinese are as subject to regeneration under communist principles as other people, their inertia is tremendous. The enthusiasm in the south for radical changes was more superficial than it appeared. The great mass of population preferred to be left alone. The energy and perseverance in stirring the population and keeping it incited was a tribute more to Russian propaganda efficiency and fanaticism than an evidence of deep and widespread desire for revolution. The slightest relaxation on the part of propagandists always has been followed by a relapse of the people into apathy. Hunan was so thoroughly uprooted by the revolution that it may seem to be an exception to this statement. Russians got in their best work in Hunan.

In Russia, while the peasants hate bolshevism, they originally were won to the revolution by being given, or promised, the land to divide and the old landlords to tear to pieces. In China there is no land to divide and no royalty to be made the target of hatred.

The militarists have been made the objects of attack, quite justly, but militarists offer no wealth or privileged position to be divided; they exist only by their own ability. Destroy the militarists of the north and so long as the Chinese remain as they are, militarists of the south will rise in their places. The Russians have failed to supplant military by civil authority supported by the masses.

The Chinese, unable to compete with the material development of the west, in their conceit fall back on criticism of western materialism as unworthy of a superior people. They are overconscious of their weakness in this direction but can not, as did the Japanese, overcome their ineptitude to develop material strength. They do suffer from an inferiority complex. When the more rational attention of the world was drawn to the magnitude of Russia's effort in the so-called Nationalist movement by the seizure of the British concessions and the succeeding violence along the Yangtze, fingers began to be pointed at the Nationalist movement. The disclosures resulting from the raid on the Soviet Embassy aroused further suspicion among Chinese and foreigners as to Russia's rôle. Russia, whose activities were receiving little attention and whose practices were being condoned by emotional societies all over the world, suddenly was thrown into the most unfavorable limelight. The isolation of Russia became more pronounced and many Chinese became aware they were dealing with the pariah nation of the world. Prominent Chinese are most sensitive to the opinion of the world. Here they were playing with a most unsavory nation, which nation had been "caught with the goods." These Russians, too, as was proved by captured documents, had criticized the utter incompetence of the Chinese as roundly as had the die-hards of imperialist nations.

(*NOTE: Attention is invited to the translation in the July "Bulletin" of various documents which were taken in the above-mentioned raid upon the Soviet Embassy.*—ED.)

Russia, even more than the erstwhile imperialist nations, demonstrated a genuine weakness in Chinese eyes for not punishing the rashness of the Fengtienites in their suppressive measures all over north China. Nobody can estimate the loss of face which Russia suffered in the spring days of 1927.

Japan had out-wested the west in her manifestations of sympathy for the Nationalist movement. The Japanese people assumed the attitude that even a critical analysis of the movement was unjust to the aspirations of the Chinese. Officials publicly declared their sympathy, and lost no opportunity to deny that the Russians were engaged in activities which ultimately would be harmful to Japanese interests. The Russians fostered this idea in every way. Privately Japanese officials showed great suspicion and concern about Russia's

part. By April of this year the Japanese ceased denying that Russian activities were a possible menace to them. The clash of interests could not be glossed over. A change of government occurred and Japan declared the strongest policy vis-a-vis China that any imperialist nation has dared. To-day no Japanese influence is inactive in combatting the spread of communism in China and the continuance of Russian influence. Widespread Japanese influence throughout China will create many formidable obstacles to radicalism.

(*NOTE. The above change of Japanese policy was coincident with the advent of the new government of Baron Tanaka. It is not unlikely that this government has been restrained somewhat by the financial crisis through which Japan has been passing. See the article on "Japan's Foreign Policies" in the October "Bulletin."*— ED.)

I have not mentioned any military factors which in themselves rarely are decisive in Chinese situations. The effective reactionary struggle being made by Chang Tso-lin perhaps has had only the effect of slowing up the nationalist movement sufficiently to permit the natural Chinese forces, unfavorable to the spread of Russian ideas and the consummation of Russian policies, to operate. Chang Tso-lin still exists because he and his group are more genuinely Chinese than his enemies rather than because the Fengtien armies have effectively resisted a powerful Chinese movement. Chang Tso-lin has greatly contributed to the welfare of China and has been a most effective bar to communistic success by his bold measures in driving the powerful underground organization from cover, and exposing the whole Russian scheme.

RECENT DEVELOPMENTS

Having gone to some length in trying to show theoretically that the huge Russian experiment promises to fail in creating its objective, namely, a socialistic revolution, when all Chinese tendencies strongly indicate reaction, or, at most, a bourgeoistie revolution, very recent developments tend to prove the argument. What in brief has actually occurred is that the north, while the whole undercurrent of opinion is antagonistic to suppression by militarists, remains so far as can be observed immune to the fundamental communistic political ideas. The practical effects of the communistic efforts in the South have created considerable mistrust even of the Nationalist movement, and the Russians seem to be popularly accused of having destroyed the revolution, which was universally desired, even if not understood. All factions of the Kuomintang have now publicly denounced communists, suppressed radicalism and have made at least a start in expelling the Russians except the group surrounding Feng Yuhsiang.

His position is ambiguous, but at present he appears to be harboring the Russian emigres, to be clinging to communistic practices and still receiving Russian money and munitions. This last may explain his whole seeming pro-Russian attitude, for Feng has never manifested loyalty to men nor to a cause when his interests were slightly imperilled. If the Russians become a real stench in Chinese nostrils Feng may be expected to deal with them more brutally and arbitrarily than have the other factions.

Chiang Kai-shek in defense of his own action charged the communists with having destroyed the revolution, and proceeded consistently to hound the communists and to denounce those Russians who were not of remaining assistance to him. The Hankow group clung to the Chinese communists and their Russian advisers until very recently. They saw the Kuomintang party breaking up and the military invasion of the north stopped.

A victim had to be found. The denouncing of Chiang Kai-shek had gained them little. In fact, it would seem that Chiang Mi-shek had gained more support by attacking communists than Hankow had by denouncing Chiang as the new militarist. Politically and economically Hankow was visibly weakening. Subordinate military commanders saw the signs of a break-up. The victim had to be found and Hankow suddenly and belatedly discovered "proofs" that the communists had played falsely by the Kuomintang party, that by no degree of elasticity could the Sun Min principles cover the wreckage of Hunan and the destruction of all sources of income in the Yangtze Valley. It must have been the communists. It was the communists! Not only had the communists been deceiving the Kuomintang party and planning its destruction, but it was conveniently discovered (northerners find documentary proofs more quickly than the Cantonese) that the Third International was actually a party to the scheme to supplant the Kuomintang by the communists, who would be Chinese no longer but a creditable international, red organization. The Hankow leaders most suddenly found themselves in the hands of unsavory elements and declared against them. I believe Chinese opinion had already denounced communism in no uncertain terms, and Hankow could only follow popular opinion. With the exception of Eugene Chen all important Hankow leaders have taken pains to announce that the revolution has been delayed by false friends—and by innuendo by another group of foreigners.

The Russian organization, without whose directives the communist party of China will probably languish or undergo transformation

to suit peculiar Chinese characteristics, has been recently disrupted, and the Russian personnel is either departing or finding unwelcome lodging places. The cleavage between the Kuomintang party and the communist party of China to-day is definite. However, long after the last Russian advisor motors to the west, China will suffer from the unsound ideas which were implanted in Chinese minds with the most consummate revolutionary skill by sincere and energetic fanatics. The Chinese character has a high coefficient of absorption. It embalms moribund ideas like amber does flies and is loath to part from any functions, good or bad, however, acquired. In consequence, some theories of radicalism, turned down upon first presentation by innate Chinese inertia, may on the other hand be expected to persist longer than elsewhere.

CONCLUSIONS

Whereas I believe that all natural Chinese influences are operating to enclose the communist nuclei as tissue surrounds foreign substance in the human body, the distribution and strength of communist cells can not be fully known. Where the infection may spread or break out in violence can only be conjectured. How long communist influence may work within the Kuomintang and among the people is highly speculative; however, the present tendency of the Chinese undoubtedly is to consider communism foreign and first to encase, then absorb it.

Meanwhile, the length of time required and the degree of suffering to be borne by the Chinese people in the process of expelling communist theories and soviet influence will depend most upon the uncompromising attitude assumed by the larger powers toward the activities of Russian and Chinese communists, which attitude rather than sentimentality will best assist the genuine Chinese in restoring normal conditions. Whereas the Russian onslaught is believed to have been doomed to failure, it is even now possible that a recrudescence of communist power accompanied by a reign of terror may arise before the inevitable and, historically speaking, early reaction sets in. The following facts must be considered:

(*a*) The Chinese leaders most under Russian influence are those who best have conducted propaganda to win American public opinion in their favor.

(*b*) Russian policy in the Far East depends upon the success of her establishing a revolutionary régime in China, a régime which is communist and international. In spite of her partial defeats it is not to be expected that she will readily accept final defeat.

(*c*) A large and active communist party exists in China and the intimate relations between this party and the Third International are only temporarily impaired by being forced underground.

(*d*) A policy of the Kuomintang party declared by Doctor Sun of maintaining the most friendly and mutual relations with Soviet Russia has not been denounced by any of the Hankow leaders. On the contrary, several of the most prominent ones mentioned the advisability of maintaining close cooperation with Russia in their common revolutionary aims.

(*e*) Russian advisors in great numbers are still in China and their activities continue. Nobody can estimate the importance of the rôle being played in the Kuomintang reorganization now in progress by the hidden hand of the Chinese communists, still under Russian direction.

NOTE.—It will be remembered that, after many reversals in the west, including the failure to keep Germany from aligning with the league and signing the Locarno pact, Russia determined to strike Europe at her weakest point, namely in the eastern colonies and eastern interests of the European powers. Accordingly, she has been especially active, with agents and money in India, Dutch East Indies (vide the recent communistic uprisings in Java), the Philippines, Japan, and above all, in China. This last summer, at the plenary session of the soviet executive committee, it was officially noted that communism had suffered serious setbacks in China, which were precipitated by the raid on the soviet embassy in Peking. Two general factors of communistic activity should be noted: First, the Third International is a world organization and finds its most fruitful field in the area where there is ferment or dissatisfaction or possibilities of stirring up trouble; second, the International, in accomplishing its aim of revolution, very cleverly adapts its method to the peculiarities of the particular area in which it is working. It is one method in the United States, another in Germany, another in China; but the object of all is the same. Attention is invited to a very interesting article on this general subject appearing in the current number of "Foreign Affairs" and written by the former foreign minister of Italy, Count Carlo Sporza.—ED.

CONFIDENTIAL

OFFICE OF NAVAL INTELLIGENCE
NAVY DEPARTMENT
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The material for the BULLETIN is largely derived from service sources and its interest and value are correspondingly dependent upon the number and character of the reports received by the Office of Naval Intelligence from our own officers. In this connection the observations of officers afloat are of great value, particularly if the reports rendered are drawn up in accordance with existing intelligence instructions.

While political and economic information is undoubtedly of much use, the collection of military information should come first in the intelligence work of cruising ships.

NOTICE

The contents of this number of the BULLETIN are based upon information received in the Office of Naval Intelligence between October 25 and November 25, inclusive.

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CONFIDENTIAL

O. N. I. MONTHLY INFORMATION BULLETIN

VOL. X DECEMBER, 1927 No. 6

ARGENTINA

A. NAVAL

1. Contract for new submarines.

A dispatch from Italy, sent by Rear Admiral Galindez to the Minister of Marine, informs the latter that on October 12 representatives of the Argentine Government and the Italian Government signed a contract for the acquisition of three submarines for Argentina, which are to be constructed in the shipyards belonging to F. Tossi, in Taranto, Italy.

These vessels, the first submarines to be incorporated into the Argentine battle fleet, will be modeled after the *Massaniello*, which has just been built by the same yard. They will measure 213.3 feet in length and will have a displacement of 780 tons on the surface and 930 when submerged.

They are to be constructed with a speed of 17.5 knots on the surface and 9 knots submerged and to be armed with a 4-inch gun and six 21-inch torpedo tubes.

The time of delivery to the Argentine naval authorities has not yet been published.

It is reported that the above contract was given to the Tossi Co. in Taranto, Italy, because of the direct influence of Mussolini, the understanding between Mussolini and the representatives of the Argentine Government being that if the submarines were awarded to an Italian shipyard Italy in return would purchase meats and wheat from Argentina.

Also, in order to compensate France for the loss of the submarine contract, there is an understanding between the French ambassador to Argentina and the Argentine Minister of Marine that the navy will buy a number of airplanes in France.

NOTE.—The above contract is a portion of the naval expansion program undertaken by the Argentine Government during the past year and reported upon in the Bulletin on numerous occasions. The program consists of 3 cruisers

(2 to be built in Italy), 2 leaders (purchased from Spain), 4 destroyers (3 to be built in England), 6 submarines (3 to be built in Italy; other 3 probably in France). The activity of the Latin nations of Europe, particularly Italy, in securing these contracts would seem to be a reflection of their policy of promoting cultural and economic relations with South America and a reciprocating of this policy on the part of Argentina. Italy, especially, is endeavoring to promote her relations with South America by every possible means, primarily on account of her emigration problem and her need for foreign markets and shipping. It is probable that Argentina made the most of this Italian policy in the terms of her naval contracts. France, it will be remembered, recently sent modern naval units on a South American cruise, while Spain recently sold two leaders to Argentina.—Ed.

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2. *Details of new cruisers.*

From a view of the model of the new 7,000-ton cruisers being constructed for Argentina in Italy, the following general points were observed:

(*a*) The six 7.5-inch guns are mounted in pairs in turrets, two turrets forward, No. 2 elevated to fire over No. 1, and one turret aft.

(*b*) The 4.7-inch guns, 12 in number, are mounted in pairs, one pair just abaft the bridge on each side, one pair on each side at the end on the deck house and midway between the fore and main mast, and the last two pairs one on each side just forward of the mainmast.

(*c*) The ship carries six antiaircraft guns. The caliber was not ascertained, but, from the model, they appeared to be about a short 3-inch, mounted singly, and three on a side.

(*d*) The deck is cut away just abaft the mounting of the after antiaircraft guns and is about two-fifths the length between the mainmast and the stern.

(*e*) The ship carries triple tubes mounted on the main deck, one set on each side about halfway between the fore and the main mast.

(*f*) The 4.7-inch guns are to have an elevation of 40°. The elevation of the turret guns could not be ascertained.

(*g*) The masts are tripods, the foremast being rigidly constructed and having a fire-control platform installed about where the three legs meet. The fire-control station on this platform is to be incased by a circular armored construction. A similarly constructed fire-control station is just forward of the foremast and is a part of the bridge.

(*h*) A notable feature in the construction of the ship is that the keel is straight, with a bullnose at its lowest point of the stem. From the foremast the bottom starts to flatten out and is extremely flat from there on to abaft the mainmast. The bilge keels appeared to be extremely small.

(*i*) It is expected that the ship will not displace much over 8,000 tons fully equipped and that her speed of 32 knots or better will be realized at full load.

(*j*) It was originally intended to carry two small planes on the gun deck to be hoisted through a hatch forward of No. 1 turret, and to have a runway from there to the stem. This, however, has been modified and they are now going to carry the planes on the upper deck, one on each side abreast of the bridge. On inquiry as to the method of launching these planes, it was stated that it had not been definitely decided, but that it was probable that they would be launched by catapults.

(*k*) The officer to whom I talked said that they realized that the ship would have a tremendous turning circle, but that they could not get everything they desired on the displacement allowed.

The following is a pertinent comment of the Argentine press:

In view of the discussion which took place in the Geneva conference with reference to the proposal for restriction of dimensions and armaments for cruisers in the future, the new ships of this type which the Argentine Government has contracted in Italy are of special interest. The *Almirante Brown* and the *25 de Mayo*, the names to be given to the two cruisers, will be sister ships of 6,500 tons, equipped with turbine engines with 85.000 horsepower, and capable of a speed of 32 knots.

On designing these ships the naval architects have broken completely away from the traditional practice of arming cruisers of moderate tonnage with guns not exceeding 6 inches only. Each of these ships will carry six 7.5-inch 50-caliber guns in center-line turrets, two being placed forward, the second raised to permit firing over the first, and a third aft. The 7.5-inch is much more powerful than the 6-inch, not only as to the weight of the projectiles—200 pounds against 100—but also as respects ballistic qualities, these being conditions which will make the aforementioned ships superior on the offensive to other ships of more displacement, armed only with 6-inch guns.

The second battery is composed of twelve 4.7-inch guns, mounted so as to have a large elevation, and six 40-millimeter pom-pom guns. Furthermore, there will be six torpedo tubes of 21.7 inches. The maximum fuel capacity is 2,000 tons, and each ship will have a complement of 600 men, including staff and crew. All the uptakes will converge into one stack with a conical base. In proportion to their displacement these vessels are the most formidable cruisers which have been built by any navy up to the present time.

NOTE.—The above cruisers would seem to bear a striking resemblance to the recent Japanese cruisers "Kinugasa" and "Aoba" in distribution of main armament and in many structural features.—Ed.

BRAZIL

A. ECONOMIC

1. Economic penetration of foreign interests.

[*Source: M. I. D.*]

(*a*) Historic attitude toward foreign capital: Brazil always has been extremely indulgent in her attitude toward foreigners and their investments. When the Republic was established, in 1889, a constitu-

tional provision assured to foreigners in the country equal treatment with citizens. Liberal concessions have been freely granted to foreigners and very few lines of endeavor have been reserved for Brazilians exclusively. Protection for the property and interests of the foreigner has been provided except in times of internal disturbance when upon occasions the Government has been too hard pressed to fulfill completely its obligations in this respect. There has been no legislation tending to confiscate the foreigner's wealth or to interfere unduly in its administration.

(b) Present attitude toward foreign capital: The Brazilian administration, press, business element, and the educated population in general realize that Brazil is only at the beginning of her economic development and that she has valuable raw materials going to waste in her vast interior because her people lack the energy, initiative, and capital to open up the wilderness and install new industries. Therefore capital from abroad is recognized as the only solution of the problem.

But there has been so much discussion in the press regarding foreign exploitation of weak nations by stronger ones, these latter first gaining a foothold by means of commercial investment, then following this up by diplomatic pressure to protect such investment, and finally usurping even the administrative functions of the victim, that there is considerable uneasiness regarding incoming capital from abroad.

At the present moment Brazil has a government that professes to be based on sound business principles and that is keenly alive to the welfare and progress of the Republic. It assures the foreigner that his capital is welcomed and that his industry and cooperation in the development of the country will be appreciated. It promises his investment adequate protection and fair treatment. There is no doubt about what Brazil has to offer in the way of inducements to the foreigner with money who seeks an opportunity to invest his capital profitably. There are openings in Brazil for every type of industry, from the small factory, managed personally by its owner, to vast plantations covering thousands of acres.

The following is a rough estimate of the foreign capital employed in Brazil:

British	$1,287,950,000
American	340,900,000
Other foreign capital	550,310,000

The principal American investments are in packing establishments and light, railway, and telephone companies.

The British are heavy investors in railroad properties, light and power properties, mining enterprises, and packing houses.

French interests are comparatively small. German establishments are for the most part commercial.

(*c*) Brazil's economic situation with regard to national defense: So far as Brazil's ability to equip and maintain her army and navy is concerned, it may be stated briefly she can feed and clothe them. Her merchant marine is sufficient to transport her troops short distances. But she has no facilities for building ships nor even making extensive repairs on her existing fleet. All military armament is of foreign make and so are ordnance supplies except ammunition for small arms. Powder, both black and smokeless, can be made in the country.

(*d*) Aviation: Civil aviation is under the Ministry of Transportation and Public Works. The federal inspector of navigation is charged with the coordination of the rules and regulations in regard to flying, mapping of air routes, and customhouse arrangements. Aside from this there is no coordination of the military, naval, or commercial air services. A German company, the Condor Syndikat, with head offices in Berlin, represented in Brazil by the house of Herman Stoltz & Co., has obtained a provisional license to establish and develop aerial services for mail and passengers between southern Brazilian ports and Rio de Janeiro. The details of this service have not been entirely worked out, but it is understood that one plane is shortly to begin flights between Rio and southern ports. A second German company, Junker Syndikat, has applied for a provisional license for similar services.

A recently organized company under the name of the Companhia Nacional de Navegacao plans to develop commercial air lines. The Latecoere Co. (French) will shortly put in operation an aerial service between France, Brazil, and Argentina.

(*e*) Bearing of the economic situation on international relations: The international policies of Brazil are influenced largely by economic considerations. Primarily, her economic aspiration is to become self-sustaining. In the furtherance of this she seeks to cultivate and extend her relations with nations which appear to be potential customers—with which she can develop foreign markets for her constantly increasing surplus products. She also seeks to promote friendly relations with nations from which she desires immigrants to develop her enormous areas of uncultivated land. The two cardinal points in her international policies are:

(1) To have close political and economic relations with the United States.

(2) The cultivation of sound financial associations with England.

(*f*) General conclusions: Brazil is a country of enormous territory, scant population, and retarded development. While rich in

natural resources, her people so far have shown little initiative in their development. The future development of the country depends upon increased transportation facilities, particularly in the matter of new road construction, an influx of foreign capital, and increased immigration. It is only recently that Brazil began manufacturing on any scale commensurate with her population and requirements, and, even so, her factories are limited to the production of small articles. She is still importing practically all of the machinery used in the Republic. With the development of the coal, iron, and mineral deposits, it is possible for Brazil to become an exporter of manufactured goods.

NOTE. It is probable that Brazil is one of the most friendly nations toward the United States in South America; it is certainly true that she is the most friendly of the three largest States. The economic, political, and strategic aspect of this friendliness may not yet be fully apparent to us nor may we yet appreciate its significance.—ED.

CHINA

A. MISCELLANEOUS

1. Hanyang Arsenal.

A visit was recently made to the Hanyang Arsenal.

The arsenal is situated on the right bank of the Han River, about a mile above its juncture with the Yangtse, above and adjoining the grounds of the Hanyang Iron & Steel Co. plant, which is now idle.

The arsenal at present employs 3,500 men, with a monthly pay roll of 150,000 Mexican Dollars. The men work eight hours a day. There are no quarters for the men within the arsenal proper, the majority residing in the close vicinity. There is one large modern central power plant, and some smaller power plants were noted but are not in use now.

All the steel used in this arsenal is imported from Germany or England. Orders for same are placed with foreign firms in Hankow and delivery is effected here.

It is probable that the following figures are exaggerated; however, there is considerable work going on, particularly on rifles and rifle ammunition.

We inspected first the rifle and pistol plant. The whole is housed in one large or rather several small closely joined buildings, very badly lighted and ventilated. There was considerable more machinery crowded in than the space would allow in modern practice. The various parts are cast in a fairly large foundry, castings

smoothed in a large grinding room, and then piled up helter-skelter in any corner that offered. The parts are then taken to the various machines, each machine having its attendant with a die or pattern.

No blue prints were seen. The wood shop in one of the smaller buildings seemed adequate, but was also very badly ventilated. The wood used for the stocks is a native hardwood, "ho tao," from the Province of Honan. It appeared to be remarkably free from checks and flaws. The finished products are taken to an assembling place and the whole rifle assembled at once. Practically all the machinery is of German make—Ludwig Loew, Berlin—built in about 1903–4. This plant turns out 200 rifles a day, a modified Enfield type, and 20 pistols a day, Luger type.

The artillery plant was next visited. This appeared to be badly organized, as a little bit of everything was all thrown around in disorder. This plant turns out field guns, howitzers, trench mortars, and stands for heavy machine guns. The field gun is a 75-millimeter French type, of which only one was in the process of manufacture. There were several gun carriages without guns in the process of being repaired. All the shields were camouflaged. No optical instruments were seen. There were several howitzers, estimated to be about 4 inches, but no carriages for same were seen. There were a half dozen trench mortars, completed, of type similar to our own. Machinery in this plant was from all sources—German, British, and the American. The production of this plant was said by the director to be 2 field guns, 2 howitzers, and 10 trench mortars per month. There were numerous other pieces of uncompleted ordnance, rifle barrels, parts of mounts, etc., lying around, which could not be identified. In one corner was a completed coast-defense turret housing a 4-inch naval rifle.

The rifle-testing shed was next visited. The range is about 75 yards in length. Each rifle after assembly, polishing, and final adjustment is sent to this shed. The rifle is clamped in a stand, which can be trained in azimuth and elevated by means of gears controlled by handwheels. This stand permits of no recoil. A tester in a seat sights each shot, supposedly the same. How many clips comprise a test was not ascertained. Several rifles in the process of being tested were examined. The bolt mechanism was found to work very sluggishly and the trigger pull to be much heavier than that we are used to. The front sight is about twice as large as that on the Springfield; the rear sight is an open sight working on the sliding-wedge principle. A record is kept of each rifle turned out by the factory.

The cartridge factory was next visited. Again the lighting and ventilation was very poor and the buildings very crowded. The machinery was principally of German make, from the same firm that made the rifle machinery. Cartridges for rifles, machine guns, and pistols were in the process of being manufactured. The production of this plant was said by the director to be 85,000 cartridges per day. Great care appeared to be taken with all the unused brass, coolies being detailed to pick up and sweep up every little piece, which is evidently reworked. Both round-nose and pointed-nose steel-cased bullets were noted. The cartridge-filling plant was not seen.

The machine-gun plant was next visited. All the machinery in this plant is of American make—Pratt & Whitney and Brown & Sharp. Two machine guns seen were a heavy Vickers water-cooled type and a larger type. No automatic rifles were seen. The production of this plant was said by the director to be 20 guns per month, but, judging from the size of the plant and the activity going on, I believe this is exaggerated. The machine-gun testing shed was not visited, but, judging from the sound of one being tested, they are not all that is to be desired, as stoppages were frequent and the rate of fire appeared to be abnormally low.

The artillery ammunition plant was next visited. There appeared to be very little work going on and we were shown nothing. The production is said to be 200 shells per month. Some 75-millimeter shells were seen, drilled out for nose fuze, but with no fuzes.

In addition to the above this arsenal turns out hand grenades (none seen, but production said to be 600 per month), ammunition for howitzers and trench mortars, and airplane bombs. About 20 boxes of 60-pound bombs, two in a box, were ready for shipment.

In general this arsenal appears to be old and crowded, badly organized, and lacking in foreign ideas of direction. In comparison with a visit to the arsenal at Canton in 1924 the following is noted:

At Canton all the directors and leading officials were educated in the United States and had had some shop training there, all spoke English, and all were desirous of improving their plant. Here no one speaks English and none have had any foreign education or training. As a matter of fact our guide endeavored to bring out the fact that the director was "one of the people." At Canton the plants were not crowded and the layout was orderly. Here everything is in a jumble and there is no definite progression in the work. At Canton all the plants and machinery were clean and in good working order, while here the plants were dirty and numerous machines out of commission.

FRANCE

A. NAVAL

1. Notes on light cruiser "Primauguet."

(*a*) *Aviation:* The *Primauguet's* catapult is mounted on an 8-foot diameter barbette on center line of quarter-deck, well abaft the turret. Its height is considered undesirable—the French officers wish it were just clear of deck, as installed in United States ships. It is similar in practically every mechanical principle to the Mark I catapult developed by the Bureau of Aeronautics and installed on United States battleships and light cruisers. Their catapult is supposed to embody certain refinements by French designers. It was constructed by Penhouet, at Saint-Nazaire. The cable, crosshead, outboard sheave method of securing the plane to car and releasing same, also device for holding plane "in battery" seem to be more rugged. The structural details of the catapult are worked out in angle bars with Warren truss system. The entire operation of the catapult can be carried out by one man.

Two planes are carried. That carried on and launched from the catapult is a single-place, pusher type, flying-boat biplane, powered with a 180 horse power Hispano-Suiza motor. It will develop a speed of 110 miles per hour and has a fuel capacity for five hours (carrying a radio set).

On the boat deck, port side amidships, is a small twin float two-seater biplane with 28-foot wing spread. It is equipped with 120 horsepower air-cooled le Rhone motor and has gas capacity for three and one-half hours. This plane can be assembled as a single-place monoplane, or two-place biplane. The underslung vertical stabilizer is stenciled with loads for each. When seen, plane was complete except wings, rudder, and elevators, which were stowed under canvas amidships. The boat derrick is fitted with permanent extension to jib crane for handling this plane. When needed, plane is hoisted over side. The construction is so light that plane can be used only from sheltered waters.

(*b*) *Communications:* The main antenna consists of two T antennas, each of three wires, bonded at center and both ends. The rat-tail connecting each one at present leads in through one insular trunk. Spare wire wrapped around lead-in insulator indicates that this is not original connection. The fore and after ends are suspended from the trucks of fore and main masts, the lower ends of flat top being secured to superstructure.

Auxiliary antenna consists of—

(1) Inverted L suspended between fore and main topmasts, 20 feet above main antenna, lead-in to side insulator in port radio trunk.

(2) Two four-wire cages from forward truck to side of after stacks, one port and one starboard.

(3) Three vertical four-wire cages from main truck to boat deck superstructure, lead-in to after control station (evidently inside of mainmast).

(4) Two vertical four-wire cages from fore truck to bridge superstructure, lead-in to conning tower; also exposed control station on bridge (lead-in runs exposed down outer bridge bulkhead).

(5) Two four-wire receiving cage antennas, one from either side of fore truck to respective wings on boat deck (amidship).

Three transmitter panels were in sight, details indistinct; evidently low and medium power tubes; no spark gaps in evidence.

Control of transmitters is evidently had from all battle stations, with the exception of the two stations on boat-deck wings, which evidently are for operation of low-powered individual transmitters.

Radio in planes with battery transmitters or receivers only; no generators in sight and no antenna visible, indicating that radio had either been removed or was never installed.

The radio apparatus in evidence was of crude and antique design, and general appearance indicated poor upkeep but considerable use. The number of antennas shows that radio enters into most of their exercises.

The main radio room has a 2-kilowatt I. C. W. transmitter (ranged in the medium frequencies). Can be used for telephone transmission. They use a chopper for their straight transmission on 600 meters. They must have an arc from the size of one lead-in insulator and two generators located below.

On the spar deck aft is located the auxiliary radio and subsignal transmitter and two receivers. One is a medium low-frequency receiver. The auxiliary transmitter is a 500-watt C. W. with four wave lengths, two of which are 300 and 600 meters.

On the spar deck, amidships, port side, is a small radio shack, which looks like a temporary station for high frequency.

On the flying bridge is a mounting for a portable radio compass, which was not installed. Also, alongside of the bridge were deck lead-ins, evidently leading to the officers' cabins for broadcast purposes.

(*c*) *Fire control and ordnance:* The wiring for the Sauter-Harle system is installed, but the instruments have not yet been installed (are to be installed upon arrival of the ship in France, as is also the director).

All guns, range-finders, searchlights, and torpedo tubes will be equipped to follow-the-pointer. Range and deflection are transmitted by telephone and visual (voice tubes are not installed for

LIGHT CRUISER "PRIMAUGUET"

LIGHT CRUISER "PRIMAUGUET"

this purpose). At the present time the ship is equipped to use only pointer fire.

Two (36-inch) searchlights, as shown in Jane's Fighting Ships, 1925, are installed.

Estimated effective range of searchlights (as given by ship's gunnery officer), about 3,000 yards.

These lights are operated by distant mechanical control from inclosed stations on the main deck (in the same athwartship vertical plane).

Four 2.9 guns, as shown in Jane's Fighting Ships, 1925, are installed, similar to the 3-inch antiaircraft guns in the United States naval service (of the semiautomatic type), except that they are equipped with the hydropneumatic counterrecoil system. It was stated that these guns would be equipped to follow-the-pointer and would be fired by director fire.

The French use an antiaircraft plotting room.

Magazines are very up-to-date installation. One magazine and shell room surround the handling room of each turret. On account of water-tight subdivision, no provision is made to supply admission from one turret magazine to another. There are about 600 shells (6.1-inch) in each magazine.

The ship is provided with gas shells (6.1-inch, supplied apparently by the army, which uses the same gun). Gas masks are supplied for every officer and man on board and are carried individually to the battle stations.

The powder charges (two for each load) are shoved home by hand. On circle deck there are 12 powder charges (in gas-tight tanks) and 6 tanks of compressed air for use in the turrets.

The lower hoist brings up two loads for each gun. These are transferred to the upper hoist by a car mounted on a horizontal track secured to the top of the fixed 8-foot diameter cylinder. The load is rolled from first stage to this transfer car by a mechanically operated arm. There is a transfer car for each gun, which must be moved about its track into line with the upper hoist. The crew of the upper handling room (circle deck) consists of six men.

The lower stage of the hoist is a reciprocating car which operates in a vertical cylinder, about 8 feet in diameter. This cylinder is a fixed part of the ship and is secured to the handling-room floor and braced to intermediate decks (as in British cylindrical gun-mounting systems). The car, electrically operated, carries four shells and eight powder bags and supplies both guns.

The upper hoists (one for each gun) revolve with the turret and raise the ammunition from the lower stage (at circle deck) by means of double reciprocating, vertical, electrical hoists that work with

great rapidity and deliver to outboard side of each gun, whence the shells are brought into line with the breech by mechanically operated counterbalanced loading trays.

Powder is passed from each magazine to the handling room through a rotating door similar to that used in United States battleships.

Apparently the same type paravenes are used as in United States service. They are stowed just forward of quarter-deck in racks on sides of superstructure. Another set stowed forward (apparently used recently).

Burney gear rove off.

Two Bausch & Lomb 4-meter range finders are mounted in individual turrets (for protection from weather and fragmentation of missiles), one on each side of weather deck amidships. Another is on top of conning tower. Estimated accurate range of these instruments, about 16,500 yards.

Four 21-inch triple torpedo tubes are mounted on main deck.

No mount for director or tubes.

Tubes fitted for both air and powder impulse.

Torpedo fire controlled from bridge by voice tubes and visuals.

Tubes are trained by motors located on underside of main deck.

Motors are controlled from torpedo-control station on bridge.

A follow-the-pointer system (of control) is to be installed.

Officers of the ship stated that no trouble was experienced in launching the torpedoes from the high positions of these tubes, but that such launching had been done only at a ship speed of 12 knots.

In addition to the 12 torpedoes carried in tubes, this vessel carries 12 more in storage tanks on deck near tubes. Range, 18,000 yards.

Turret design is excellent—maximum advantage taken to economize all available space. The immediate impression made was of modern equipment, excellent condition, and superior installation to that of the twin mounts in United States scout cruisers.

Maximum elevation 40°; depression, 10°. A two-way switch permits each turret to be fired from the director (collective fire) or independently (when pointer fire is desired). Another switch permits both guns to be fired by either pointer. Inclined front face of the turret is 2 inches thick, sides 1½ inches, and rear plate 1 inch.

NOTE.—See November "Bulletin" for further description of this class of vessel. The "Primauguet" is of 7,800 tons, and has two other vessels in her class, all completed in 1925. In addition, France is building, or has authorized, four 10,000-ton cruisers. Attention is invited to the inclosed photographs of the "Primauguet."—ED.

GERMANY

A. NAVAL

1. New cruisers of the "Königsberg" class.

[*Source: British press*]

The first of these ships, the cruiser *Königsberg*, was launched on March 26 last. During the summer a description of her design became known. Brief as the details were, it was immediately evident that the Germans were constructing cruisers of a distinctly original type.

On August 20 last the *Karlsruhe*, a sister ship to the *Königsberg*, went down the launching ways. A third unit of the class, as yet only designated as the cruiser *D*, still remains upon her building slip.

The hull of the new German cruisers measures 554 feet 5½ inches on the water line and has a beam of 49 feet 10½ inches. These two dimensions indicate that the lines are of the fine, high-speed type. When drawing 16 feet 4½ inches the standard displacement will be 5,912 tons. The hulls of these German cruisers are said to be built of a new, high-tensile steel of exceptional strength and lightness, the exact composition of the metal being a carefully guarded secret. Further, to reduce structural weights, extensive use is made of light steel castings, and cumbrous riveting has been supplanted by the use of electrical welding along the joints and seams. All these special metals and processes are extremely costly, but they were the only means by which the Germans could attain their desired end—the production of a hull of exceptional lightness, allied with great strength.

The hulls of the *Karlsruhe* class cruisers do not stand so high out of the water as do the hulls of the new 10,000-ton "treaty type" cruisers. The German naval architects have purposely restricted the freeboard and have reduced the upper works to a minimum. Their aim has been to make their ships lie low upon the water and present as inconspicuous a target as possible. To aid this quest for invisibility at long range, special devices have been incorporated in the machinery design, so as to eliminate the emission of smoke from the funnels.

Contrary to previous reports, the three triple turrets (containing the main armament of nine 5.9-inch guns) are not all mounted upon the center line. The two after turrets are mounted en echelon—that is, they are set diagonally across the hull. The second (port) turret is elevated, so as to fire over the roof of the third (starboard) turret. Here we find a distinct breakaway from the modern, con-

ventional method of putting all the main guns along the center line of the hull. But it is hard to see what practical advantages the Germans hope to gain from this rather bizarre system of locating their turrets. To take one objection: If the shell and powder rooms are located directly below the two after turrets, surely the propeller shafts and the shaft tunnels will have to pass directly through those magazines, and will so cut down the space available for the stowage of ammunition. This difficulty might be obviated by the use of "electric drive"; but it appears more likely to us that the after 5.9-inch guns take their ammunition supply from a large, central magazine, located below and between the two turrets.

The 5.9-inch guns of the *Karlsruhe* and her two sister ships (*Königsberg* and *D*) are upon high-angle mounts and are said to be capable of ranging over 20,000 yards.

In each turret of the *Königsberg* and her class companions the three 5.9-inch weapons are mounted in one sleeve. The three guns are loaded, trained, elevated, and fired as one piece. In fact it might be considered, for all practical purposes, that each turret contains one triple-barrel gun. The Germans claim that by means of special gear they have overcome the loading difficulties associated with closely adjacent guns. They declare that their "three-in-one" mounts can deliver eight to nine salvos per minute. In the case of the *Karlsruhe* class, this means the discharge of 72 to 81 101-pounder shells per minute—an average of more than 1 shell per second. If the German claims be true, then the cruisers will be able to put out three and a half tons of steel and high explosives from their 5.9-inch guns every 60 seconds.

The forward triple turret is emplaced upon the raised forecastle. Just abaft of this forward turret stands a big, polygonal, armored conning tower. Through the long and low bridge is stepped the heavy "pillar mast," surmounted by an octagonal fire-control top. Here we come to one of the perplexing features of the design, namely, that there is provision for only one searchlight, and that mounted in a top halfway up the foremast. Modern cruisers usually have two, three, or four large-diameter searchlights, and why the Germans should think only one such projector adequate is rather a puzzle. It may be that they deem star shell to be a safer method of night illumination. Another obscure point is the absence of any kind of mainmast. Some such mast, no matter how abbreviated, seems inevitable for the rigging of the radio antennae.

To port and starboard of (and below) the fore funnel are the forward pair of triple torpedo tubes. Just abaft the fore funnel comes the standard compass platform. The second funnel is flanked by the derricks for handling the boats. Between and above the after pair

of triple torpedo tubes we find a large, tanklike erection whose exact purpose we are left to guess at. It may be an after control or it may be the head of a big engine-room ventilator and contain the exhausts of the Diesel motors. Moving further aft along the hull, we find a low ribbed-headed ventilator; next the four 3.4-inch anti-aircraft guns, disposed at the angles of a square, and, lastly, the after triple turrets.

The stern is cut off square. In it and just above the water line is a large hatch through which mines can be dropped overboard. Along the main deck light guiding rails are laid, so that mines can be moved aft and then discharged through the sowing port in the stern. How many mines are carried by the new German cruisers we are not told.

Yet another outstanding feature of these remarkable German craft is the design of their propulsive plant. High-pressure steam—the latest development of marine engineering—is to be developed in their six oil-fired, water-tube boilers to rotate geared turbines of 65,000 shaft horsepower giving a speed of 32 knots. Not content with the fuel-saving properties of increased steam pressure, the Germans have also given their new cruisers Diesel motors. With the steam turbines shut down and using the Diesels only, one of the *Königsberg* class cruisers can cover 5,500 miles at 14½ knots, or 6,000 miles at a somewhat lesser speed. Steam turbines will give all the high speed required for battle, chase, and retreat, while the Diesel engines will give the ship that prolonged cruising radius so urgently required in a vessel of the cruiser species.

NOTE.—In addition to the three ships of the "Königsberg" class the Germans have built one other since the war, the "Emden," of the same displacement but differing in armament and structural design.—ED.

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2. *The autumn maneuvers of the fleet September, 1927.*

Period of the maneuvers: September 14–23, 1927.

(*a*) Inspection by the President at Swinemuende. Maneuvers, battle practice, torpedo-boat attacks.

(*b*) September 15–17. Torpedo-boat attacks (training). Practice in breaking through the lines. Cruising with submarine protection. Torpedo-boat attacks at night. Refueling.

(*c*) September 19–22. Cruising in battle-line formation. Offensive maneuvers of the torpedo-boat flotillas. Cruising with mine-sweeping devices. Cruising behind mine-sweeping detachments, night battle practice, cruising maneuvers of the battleships and cruisers at full speed. Mooring of battleships and cruisers. Battleships and cruisers cruising in battle-line formation. Cruising at night behind mine-sweeping detachments.

(*d*) September 22 23. Battle maneuvers of all forces in the Baltic Sea under the command of the chief of the navy department.

(*e*) Return to Kiel. Concluding discussion at naval station, September 23.

B. ECONOMIC

1. Report of the Agent General for Reparations.

In view of the widespread interest in the recent communication of Mr. Parker Gilbert (Agent General for Reparations) to the German Government, the facts of the case are outlined as follows:

The Agent General for Reparations payments publishes a report twice yearly in which is contained remarks on the economic and financial position of Germany. Each time the report has appeared the German Government has disagreed on many points, contending that Mr. Gilbert was either incorrectly informed or did not possess sufficient information as to the true facts.

The Agent General has always prepared and issued his report without previous consultation with the German Government. In the past that Government had been able to prove in some instances that the Agent General's report was incorrect, and in order to prevent similar occurrences in the future an agreement was reached under which Mr. Gilbert was to submit a draft of his report and permit the Government to have the opportunity to discuss any points of a controversial nature prior to the report being prepared in final form.

The recent controversial communication of Mr. Gilbert to the Government is the draft of his next regular report, which, under the agreement between both parties, was to be kept strictly confidential.

By a breach of confidence, for which Mr. Gilbert is in no sense responsible, certain parts of the report came to the knowledge of a German newspaper correspondent who is closely in touch with the Berlin correspondent of the New York Times. The Times correspondent immediately cabled his paper such details as his informant had been able to procure.

Unfortunately, the draft report reached the cabinet at a time when they were discussing financial policy, and some members felt that the Agent General was attempting to show his disapproval of certain projects.

The whole question was at once taken up by the Democrats and the Labor Party, who are in opposition to the Government, and created great difficulties as well as internal dissension in the cabinet.

The opposition parties demanded publication of the report, which was most embarrassing in view of the agreement already reached

that the reports of the Agent General should only be published after the Government has had the opportunity to state its views on any points on which they are in disagreement.

As this communication was naturally only in draft, and the Agent General was well aware that there would be considerable discussion and disagreement, he stressed many points much more strongly than would ordinarily be done in the final report to be published, and it is for this reason that both parties at the present time are strongly opposed to the present report being issued.

Among the points put forward is the suggestion to change the present structure of the German Empire by abolishing the Federal States. This naturally is a question of a most delicate nature and affects German interior politics; the south German States in particular appear to be most anxious to preserve the present remanent of autonomy. Although from many points of view these States are medieval and should disappear, any initiative taken by the Agent General on such a question would hopelessly complicate it and ultimately retard any possibility of accomplishment. Many thoughtful people in Germany think that it will come sooner or later, but action must be from the inside.

Discussion continues on the Parker Gilbert report both in France and Germany. The German press handsomely acknowledges that Mr. Gilbert's report is expressed with tact and that his remarks are in strict conformity with the terms of the Dawes agreement. The report issued by Doctor Koehler (German Finance Minister) mentions the increase of salaries paid to public officials which many industrialists believe is unnecessary and which, together with augmented pensions to retired civil servants, have added a severe burden to German industry.

Doctor Koehler did not sufficiently emphasize the very satisfactory increase manifested of late in the export of manufactured produce due in large measure to the increased home consumption which has enabled manufacturers to cut down overhead costs. As Mr. Parker Gilbert points out, this improvement in the domestic market is made possible by the foreign loans received. Germans feel that the increase of exports must in the long run tend to facilitate the transfer of the Dawes payments and therefore should be encouraged by the reparation agent.

As justification for the municipal credits Doctor Koehler dwells on the fact that in Germany the greater part of the public utility companies are owned by the municipalities themselves and that the bulk of the loans to these organizations have been utilized for the extension of public works. Nevertheless, there are many who think that Doctor Schacht, president of Reichsbank, is right in desiring

to reduce the number of municipal loans because they do not present the same urgency as private loans. He recommends a central organization to control municipal investments which involve foreign or domestic loans, as municipalities have, in his opinion, been making excessive demands on the capital market. The problem is, therefore, how to curb foreign municipal loans without bringing the capital influx to a stop, which would cause a crisis in transfers.

French opinion concerning the reply made by Germany to Mr. Gilbert's report admits that the German attitude is conciliatory but unsatisfactory, as it does not answer the charges made and the proofs given of lavish expenditure in the German budget. The fact remains that one immediate result of Mr. Gilbert's report has been a decision to modify radically the extraordinary budget for 1928.

Doctor Schacht is applauded for wisely stressing the imperative necessity for Germany to reduce in drastic fashion both internal credits and foreign loans if a crisis is to be avoided within the next two years when the full installments of the Dawes plan come into force.

According to French opinion, the Dawes payments can easily be met if Doctor Schacht's advice is followed, for Germany's economic condition is improving every day. The unemployed are only 5 per cent of the total number of workmen, whereas they numbered 15 per cent last year and 22 per cent in 1925.

The production of cast iron and steel is steadily increasing. The apparent deficit in the foreign trade balance is being gradually reduced, this deficit being only 192,000,000 gold marks in September, against 449,000,000 in June. Exports also are rapidly increasing, the September figure of 643,000,000 marks being a record.

It is believed in Paris that a strong party in Germany aims to upset the equilibrium once more in the hope of bringing about a revision of the Dawes plan. If the Germans made any attempt to put forward a request for this revision it is quite possible that the French Government (whatever party holds power) would seek to revert to the larger reparations demanded by the Versailles treaty, as most Frenchmen believe to-day that Germany is in a position to pay far more than the sums required under the Dawes scheme.

It is of interest to note that, considering the importance of its functions, the committee administering the Dawes scheme is not costly—about 3,600,000 marks per annum, or 300,000 marks monthly.

The Parker Gilbert staff comprises 52 English, 38 French, 15 Americans, 11 Italians, 8 Belgians, and 5 Dutch (staff of Professor Bruins, the commissioner of the Reichsbank), a total of 129.

NOTE.—The principal theme of Mr. Gilbert's report was the calling of the attention of the German Federal Government to the excessive expenditures by the States and municipalities of the Reich. These expenditures are being in great

part met by loans floated abroad, principally in New York. These loans, if not carefully regulated, will have the effect of threatening German credit abroad, unbalancing of the budget, and hindering the payment of annuities under the Dawes plan. Mr. Gilbert summed the matter up as follows:

"I have attempted to bring together in the foregoing pages the accumulated evidences of overspending and overborrowing on the part of the German public authorities and some of the indications of artificial stimulation and overexpansion that are already manifesting themselves. These tendencies, if allowed to continue unchecked, are almost certain, on the one hand, to lead to severe economic reaction and depression; and are likely, on the other, to encourage the impression that Germany is not acting with due regard to her reparation obligation."

Since the above article was written, Doctor Schacht has announced his strong approval of Mr. Gilbert's warnings.—ED.

GREAT BRITAIN

A. NAVAL

1. Destroyer "Ambuscade."

This vessel was designed and built by Yarrow & Co., laid down in December, 1924, and is understood to be now practically ready for service. Work in progress at the dock yard includes, as a principal item, the renewal of defective packing in the expansion joints of main steam lines. The dimensions of the vessel as given in the naval estimates 1927–28 are as follows: Length, 307 feet (p. p.); breadth, 31 feet; mean draft at standard displacement, 8 feet 3 inches; standard displacement, 1,210 tons; corresponding speed at standard displacement, full-power trial, 37 knots; total fuel-oil capacity, 385 tons.

Armament: Four 4.7-inch guns, two 2-pounder pompoms. There are also six 21-inch deck torpedoes in triple mountings, not stated in the naval estimates.

The general arrangement of the vessel is in accordance with the sketch shown in Jane's Fighting Ships, 1926. In general, the vessel is an improved W class destroyer, having higher speed. It is understood that effort has been made in the design to keep the weight to a minimum and to so restrict the machinery spaces as to allow improved habitability features to be provided for the type. As an indication of the former, the air-port battle covers for the deck houses were noted to be of aluminum. The crew's quarters are located forward under the forecastle deck, and the officers' quarters are located aft under the main deck. The boilers, two of 12,000 rated horsepower, as stated by the commanding officer, and one of 8,000 rated horsepower, are located in two boiler rooms, one large boiler being installed in the forward watertight compartment and the second large boiler and a smaller one being located in

the after compartment. The forward large stack serves the two forward main boilers and the small after stack the smaller boiler. The main machinery plant, consisting of two Brown-Curtis geared turbines, with auxiliary machinery, is located in one large compartment. The foremast and stub mainmast are of wood, the stays being well insulated.

The forward bridge and deckhouse structure is of steel; entering a passage at level of forecastle deck there are two compartments in the after part, one on the starboard side being the sick bay, arranged to accommodate one person in swinging cot in center, ordinarily kept unslung, and in this compartment is located the necessary equipage to carry a limited amount of medicinal equipment and supplies. On the port side aft, in a corresponding space, is a stateroom which would accommodate the medical officer in war time. No medical officer is carried in the ship's complement during peace time, and the room is spoken of as a spare stateroom. Forward in the house, under the No. 2 4.7-inch gun, is what is called a recreation room. This compartment is of good size. There are two mess tables placed fore and aft, one on each side, and each table has benches with inclined backs. The compartment is heated by means of a coal stove, is light and cheerful, and could accommodate some 30 men or more with considerable comfort.

On the next level above in the bridge structure is the inclosed navigational bridge, spoken of as the "wheelhouse," with steering stand, navigational instruments, etc., and in the after part on the starboard side the emergency cabin, and on the port side the chart house. Both of these latter compartments appear of good size for the purposes, roughly about 8 by 8 feet by estimate. The bridge platform at this level is carried out to the sides. From the inclosed bridge the view dead ahead is restricted by the No. 2 4.7-inch gun, and an adjustable mirror about 18 by 24 inches has been fitted to give the helmsman or commanding officer vision dead ahead from the wheelhouse. It is understood, however, from the commanding officer that the arrangement is not looked upon with favor and that the vessel will habitually be conned and steered from the bridge above.

On the next level above is the navigational bridge and the fire control. The steering wheel in the forward part operates by telemotor; a Hastie's electrohydraulic steering engine located aft. This vessel is understood to be the first destroyer in the British Navy to have electrohydraulic steering gear. The magnetic compass is just forward of the steering stand and the gyro repeater just abaft it, on the center line. A gun director, understood to have been supplied by Vickers (Ltd.), is just abaft the gyro. Abaft the gun director and above it is the range finder, understood to be furnished by Barr & Stroud, and said by the commanding officer to be a "9-foot range

finder." The range finder and director were covered and not shown. Fire of the torpedoes can also be controlled from this level, and also the release hydraulically of the depth charges aft. Inquiry developed the fact that there is a small central station down below. It is understood that the central station is located below the forward bridge structure.

Forecastle deck forward: Two patent anchors are carried, hoisted by a steam-driven anchor windlass operating a capstan above. Around the capstan the deck is ribbed radially to prevent slipping when hand operated. In the vicinity of the forward gun mount and the bridge structure the deck is covered completely with linoleum, with angles laid for securing cocoa matting in place in way of passages. Aft, in the vicinity of officers' quarters, the deck is also covered with linoleum.

Main deck forward: The crew's galley is located amidships on the main deck just forward of the break of the forecastle deck, the galley stack being carried up and abaft the foremast to a height slightly above the top of the forward stack. One coal-burning range is installed in the galley, with steam cookers, sink, etc. No bakery is supplied. About 8 tons of coal are understood to be carried for the galley ranges and heating stoves.

In the crew's quarters, forward on this deck, the men are berthed in hammocks, and lockers are installed outboard for the stowage of personal effects. These lockers also serve as outboard seats for men at mess. Above the lockers and still further outboard, following the flare of the ship's side, are four racks running fore and aft. The top rack was said to be for the stowage of helmets when issued, the next below containing what looked like a round cake tin opening at the top, which was said to be provided for the flat caps of the men. On the next rack below the ditty-boxes were stowed, and on the lowest rack the shoes were stowed. The ditty-box was noted to be of wood and of considerably less height than the United States Navy box.

The heating throughout the living quarters of men and officers is by means of coal stoves located centrally so far as possible in the several compartments, supplemented by a limited number of electric heaters which plug in on the ship's lighting circuit. None of the electric heaters, however, was noticed excepting in the commanding officers' cabin.

The living quarters, including certain spaces in the bridge structure, are provided with artificial supply ventilation, with outlets of the Punkah Louver type.

Aft of the windlass compartment forward is a hatch and passage to the storerooms below, arranged, it is understood, for the opera-

tion on the general storekeeping system. No paymaster is included in the complement, but the system is in charge of a pay yeoman, a petty officer. The application of this system to destroyers is also understood to be new, and was spoken of favorably by the commanding officer. All stores for ship maintenance, when issued, are charged under one of four headings—executive officer's stores, engineer stores, gunnery stores, and torpedo stores. Equipage, such as boats, anchors, etc., are carried on the ship's allowance as permanent stores and are accounted for, when expended, by survey.

The deck erection amidships, between the smokestacks, carried the two pompoms on top, and underneath are the air-intakes. The air-intake covers when closed are in a vertical plane. Each cover is hinged at the bottom, and when open hangs down and is secured by a catch to prevent swinging. The boilers have closed fireroom type of forced draft, the air supply being by turbine blowers of the Terry type. The after-deck house carries the No. 3 4.7-inch gun on top, and inside the vestibule for entering the officers' quarters on the deck below, and also the officers' galley.

At the stern depth-charge racks and releasing gear are carried with stowage, it was stated for four depth charges.

On the after-platform deck are located the officers' quarters. The arrangement is as follows: A hatch from the deck house aft leads to a central compartment, with entrance on one side to the officers' bathroom containing a bathtub on the starboard side and water-closet on the port side. Leading aft from the central compartment is a passage at the end of which is a small wardroom. On either side of this central passage are three single staterooms. On the port side of the wardroom is a transom, wardroom table, sideboard, etc.; on the starboard side, a transom outboard and an arrangement suggesting a cabin with heating stove, upholstered chairs, small table, bookcase, etc. Farther aft and on the other side of the water-tight compartment and entered from the main deck is the steering-engine room.

Forward of the group of quarters described above and separated by a water-tight bulkhead are the quarters of the commanding officer, executive officer, and engineer officer. This group of quarters are entered from a hatch in the after-deck house, down a ladder leading forward into a central passage. At the end of this central passage forward is the commanding officer's cabin and stateroom extending across the vessel, the stateroom being on the port side. The cabin is commodious and comfortable, containing a table, transom on the starboard side, desk, safe, heating stove and electric heater, and two upholstered chairs. The stateroom contains a fore-and-aft bunk outboard, wardrobe, lavatory, etc.

Aft of the commanding officer's quarters and on each side of the passage is a single large stateroom for the executive and engineer officers. No bathroom is provided for this group of quarters, except the one previously mentioned on the other side of the water-tight bulkhead. No pantry is provided for the commanding officer's cabin, and it is understood that the commanding officer, executive officer, and engineer officer mess with the other officers aft in the wardroom.

The armament has already been mentioned. The 4.7-inch guns were covered, but it was noted they have high mountings, the trunnions being estimated about 5 feet to 6 feet from the deck. No power ammunition hoists for ammunition handling are provided, and so far as could be learned none is contemplated in this type of vessel. In connection with the six 21-inch torpedoes, comment was made that this installation of 21-inch torpedoes was probably the last of this size that would be provided for this type of vessel. (NOTE.—The future torpedoes possibly being of 23-inch, as the British have been developing one of this size.—ED.)

Three oil-burning Yarrow boilers are installed. One boiler, said to be of 12,000 rated horsepower, is located in the forward compartment, fired from forward. The second boiler, of 12,000 rated horsepower, in the next compartment aft and fired from aft, both boilers utilizing the forward and larger smokestack. A smaller boiler, of 8,000 rated horsepower, was said to be located in the No. 2 boiler room. The after-boiler room was not available for inspection, owing to work in progress. The boiler pressure was stated to be 300 pounds superheated to 700°. An official of Yarrow (Ltd.) recently referred to the boiler plant of the *Ambuscade* as 40,000 horsepower, and also stated that the vessel could make its contract speed of 37 knots with the two large boilers only in operation.

Two geared Brown-Curtis turbines, one on each side, are installed in one large machinery compartment. The arrangement of main and auxiliary machinery is such that there is apparently ample room for the plant installed. The gear casings were said to be of aluminum. The commanding officer stated that the turbines had been quite satisfactory on the final full-power trials.

The fuel-oil storage was said to follow the conventional arrangement in British destroyers; i. e., contained in two groups of thwartship tanks forward of the boilers.

In discussing destroyer construction the information was furnished that Admiralty steel used for light hull construction had a tensile strength of from 37 to 42 tons per square inch, with a yield point not less than 17 tons per square inch, and that scantlings in the *Ambuscade* had been shaved very close.

Two boats were on board, carried in revolving davits forward abreast the forward smokestack. On the port side was a 20-foot wood whaleboat (lifeboat) and on the starboard side a 20-foot wood motor launch. It is also understood that two 16-foot dinghies are carried in chocks on deck inboard of the boats on davits.

No stowage is provided for aircraft, and it was stated that so far as was known the installation of aircraft is not contemplated.

NOTE.—Photograph of the "Amazon" (a sister ship) was given in Bulletin of July last. There are two boats in this class.—ED.

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2. *New construction.*

Press announcements have been noted to the effect that tenders have been asked by the Admiralty for one 10,000-ton cruiser, nine destroyers, and six submarines of the 1927–28 program of new construction. Inquiry at the Admiralty, however, develops the fact that tenders have been requested by the Admiralty for six submarines only of the above, and that these tenders are to be returned on November 22. The Admiralty have stated that tenders for the nine destroyers included in the approved program have not yet been sent out, nor have tenders for the 10,000-ton cruiser. The Admiralty have also advised that the two class B cruisers to be built at the dockyards Portsmouth and Devonport have not yet been formally ordered.

NOTE.—The 1927–28 program allowed, among other units, for one 10,000-ton cruiser and two 8,000-ton ships. On November 16, after the above was written, the First Lord of the Admiralty announced in the House of Commons that the Government would not proceed with the construction of one of the authorized 10,000-ton nor one of the 8,000-ton ships. This action was probably for reasons of economy, but it also may have been calculated to have its effect on United States public opinion. That it had an opportunity to do this is shown by the wide publicity given in this country to the First Lord's statement.—ED.

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3. *"Island" on "Furious" type aircraft carrier.*

An opportunity was recently had to discuss with a reliable source the subject of "islands" on aircraft carriers of the *Furious* type. In regard to the *Furious*, the statement was made that the present flush-deck arrangement was reasonably satisfactory and that there was no intention on the part of the Admiralty to install an island at any future time on this vessel. The *Furious* is regarded as fairly satisfactory from an aviation point of view, although it was learned that if the vessel were assigned to duty in the tropics the heat in the afterpart of the ship due to the smoke ducts would be "unbearable." A further statement was made that the island arrangement,

if there is sufficient width of deck abreast the island, is an advantage to aviators in landing, as it gives them a definite objective as a guide in the landing operation. From a navigational point of view, the arrangements now provided on the *Furious* are not entirely satisfactory.

In designing the island it was also learned that it is the opinion of the Admiralty that it should be made as small as possible and located as far forward as practicable; no armament should be installed on the island, and it is understood that none is installed on the islands of the *Glorious* and *Courageous*.

NOTE.—The "Furious" was originally designed as a large, fast cruiser, being practically a sister ship to the "Glorious" and "Courageous." All three of these vessels have been or are being converted into aircraft carriers. The "Furious" is of 19,000 tons normal displacement. The "Furious" has no "island." When the "Courageous" and "Glorious" complete their conversion the British Navy will possess six aircraft carriers, varying from 13,000 to 26,000 tons in their displacement. This does not include the 6,000-ton carrier being built in Australia.—ED.

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4. Destroyer base, Port Edgar, and dockyard, Rosyth, Scotland.

His Majesty's destroyer base, Port Edgar, and His Majesty's dockyard, Rosyth, located on either bank of the Firth of Forth just above the Forth Bridge were visited on September 5, 1927.

Port Edgar: The fact that the Admiralty has under consideration closing this base as an economy measure has caused it to feature prominently in the press and public view. The prospect has caused consternation in the vicinity, and the local civil authorities are making every effort to influence a decision to continue it. The Admiralty confirms the fact that the question is under consideration, and has been for some time, but that no decision has been reached. The recent decision by the Admiralty to reopen Rosyth, which is just across the way, as a care and maintenance base for destroyers has strongly influenced the circumstances, and it is felt that there is no point to keeping both places open. March, 1928, is mentioned as the probable date of closing Port Edgar and the estimated saving £1,000,000 a year.

Port Edgar was constructed at the beginning of the war, and has been since the war the base for two flotillas of destroyers. In addition it has berthed and provided base facilities to destroyer flotillas of the Atlantic Feet while operating in northern waters.

The base, with its many facilities, consists of officers' and men's quarters, with recreation centers and facilities well equipped, foundry and machine shops, power station, victualing stores, oil stores and tanks, distilling plant, canteen, torpedo workshop, and gunnery

school. There are excellent railroad connections. There is a naval hospital close by which was built during the war. The "pens" or piers are capable of providing berths for about 75 destroyers; any number can anchor off. Ships can be berthed at all tides. Facilities are provided for oiling and provisioning destroyers in the shortest possible time, and organization emphasizes this feature of the base.

There is no provision for docking destroyers at the base. There is a small floating dock across the way at Rosyth capable of taking a destroyer, and in the past it had been planned to bring it to Port Edgar, but this was never done, probably on account of the fact that it would reduce the berthing space.

It was stated at the time of the visit that there were about 30 officers and 400 men on the station, a large per cent of the officers being of the paymaster branch, with duties in connection with stores and supply.

In keeping with the British policy of providing at the several fleet bases gunnery training facilities, there is a well-equipped and organized little gunnery school. At the time of the visit a drill was in progress. The gun crews and fire-control party intact had been sent ashore from an active destroyer anchored off. They were first put through setting-up exercises and then sent to gun and fire-control stations for drill and instruction. Part of the gun shed was screened off and not shown. In the part seen there was a battery of four 4-inch and one 4.7-inch guns and two director stations. The gun and director crews are given individual drill and then coordinated drill. The guns are equipped with receivers for following the pointer. The guns were provided with the standard air-rifle "ping-pong" gear and motion was given to the target by clock mechanism. There was another scheme for drilling pointers which the gunnery officer stated he had introduced under the name of "simultaneous targets." It consisted of targets painted to represent a destroyer at sea and set opposite each gun about 20 feet away. These points of aim were caused to move simultaneously by connections with a single small electric motor.

The director drill was seen from a distance and it was observed that mechanical means were provided to give motion to the platform in simulation of the yaw of the ship.

Spotting drill is held in a separate room close by the gun shed. The splashboard is located about 20 yards from the spotting station and so screened as to hide from the spotter the operators and extraneous gear, thus presenting as far as possible the actual picture seen at sea. Splashes are represented by tongues of wood which are ordinarily housed below the surface of the board with lever connections to the side of the board. The operator, by pressing the proper

levers, causes the splashes to appear in the proper position relative to the target. Arrangements are included for varying the target angle and for moving the target across the line of fire. A moving range scale is used to maintain the correct relation between the target and the mean point of impact. A range clock is set up adjacent to the board and the range scale is moved along the board in accordance with the range generated. Spotters used binoculars, and normal procedure was carried out, including estimation of initial range and deflection. A snare drum was ruffled to represent the discharge of a salvo. The drill was altogether well conceived and smartly conducted.

No torpedo-control drill apparatus was seen. It may have been in that part of the building screened off and not shown.

The general impression obtained is that Port Edgar is a well-adapted, well-organized, and efficiently administered destroyer base. It reflects the time and nature of its construction and lack of improvement and upkeep. Consequently there is the appearance of non-permanency about it.

Rosyth: The dockyard remains fully decommissioned, and the recent Admiralty order to lay up destroyers there in "maintenance reserve" will not materially affect its status. About 100 civilian personnel are employed on upkeep and preservation and only one small boat shop is open and in operation. The Alloa Shipbreaking Co. furnish the principal signs of activity. This company has been authorized to erect sheds and equipment along the water front in connection with shipbreaking operations, and are at present engaged in breaking up the battleships *King George V* and *Thunderer* and the large ex-German floating dock which was taken over after the war. This dock met with misadventure and suffered its back to be broken at its moorings. Judging by the scrap material seen and the statement of the civilian foreman conducting me, the dock was otherwise in excellent state of material preservation.

The reserve destroyers will be laid up in the commodious wet basin. The three large graving docks take off from this basin. One of these docks was lengthened subsequent to construction to take the battle cruiser *Hood*, which was docked there not long since. There are two entrances to the wet basin, one on the east side and one on the south side; the latter is ordinarily used. The east entrance forms a lock and I was informed could be used to dock the largest ship. The wet basin itself is capable of being pumped out. At the time of the visit no destroyers had yet arrived to be placed in the new maintenance reserve, but 35 had been ordered, and it was expected that this number would eventually be increased. These destroyers will be moored in nests of four along the walls of the basin. No

personnel will remain on board them. Such personnel as is required for upkeep will be furnished from the tender *Greenwich*, which had already arrived and was moored in the east entrance to act as mother ship. There is no intention of increasing the civilian personnel for duties attendant on reserve destroyers.

Rosyth is a well-laid-out modern establishment of a permanent nature. It was designed and constructed with up-to-date knowledge of the requirements of a maintenance and repair base for vessels of a modern fleet, though the original plans were not brought entirely to completion.

NOTE.—Thirty-five destroyers are laid up in Rosyth with reserve complements totaling 345 men.—ED.

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5. Visit to the works of Barr & Stroud (Ltd.).

The works of Barr & Stroud (Ltd.) were visited in September. In comparison with other British works, a visitor is most favorably impressed with the up-to-date condition and layout of this plant. The excellence of the organization, administration, and methods of management are worthy of special note and compare with the best modern practice.

All shops were shown except the experimental shop. Standard products were seen in the various stages of manufacture and assembly. Nothing is shown and little is said of confidential developments, for the British Admiralty and the presence of Admiralty inspectors emphasize these restrictions. In conversation some dissatisfaction was expressed at this rigid restrictive control by the Admiralty, not so much in holding up the release of new developments produced for the Admiralty but others of merit which the Admiralty might regard with favor but are unable to take up on account of prior commitment to another type.

The most interesting gear seen was the fire-control apparatus in manufacture for the Italian cruiser *Trento*. The factory was hustled to meet the date set by the Italians and then had to wait nine months for the ballistic tables. A complete set of this gear was manufactured and delivered to Japan for installation in the cruiser *Kako*. The Japanese originally specified "central control," or automatic arrangements eliminating the operators at the gun, for their installation, but this was given up when the company convinced the Japanese that this feature was dependent on their turret and gun-mount design, which was incapable of operation with the necessary rapidity.

Barr & Stroud (Doctor French) has completed the design of an antiaircraft fire-control system in which the problem is solved optically by the rotation and translation of prisms. Doctor French

stated that the design had not yet been released by the Admiralty. He is in the United States just now witnessing the gunnery control tests conducted by the Army at Aberdeen.

The range finders in the 16-inch turrets of the *Rodney* and *Nelson* are of 41-foot base and the range finders installed in the 8-inch turrets of the new cruisers are of 22-foot base.

A duplex range finder, two independent observation systems in one tube, is in manufacture for Japan.

Submarine periscopes are in manufacture for Holland and Yugoslavia.

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6. Cammell Laird & Co. Establishment, Birkenhead.

The Birkenhead establishment of Cammell Laird & Co. (Ltd.) was visited in September. This firm has just completed the battleship *Rodney* and has under construction the propelling machinery for the new cruiser *Dorsetshire*, being built by His Majesty's dockyard, Portsmouth. They have hopes of getting the contract for the construction of one of the new cruisers yet to be awarded. Birkenhead was a base for the repair and overhaul of many of the United States destroyers during the late war; some 95 visited the yard for this purpose.

At present about 6,000 men are employed, but in better times occupation can be found for 10,000 to 12,000 people, whilst during the war as many as 15,000 persons were employed at one time.

There are 10 building berths in all, ranging up to 1,000 feet in length. The berths are fitted with the latest electrical improvements and are of suitable construction for the largest vessels which can be accommodated upon them. There is ample depth of water and space for launching the largest vessels.

The machine sheds, which are conveniently placed in relation to the berths, are built of steel and cover in all an area of 5¾ acres. They are fitted with the most recent labor-saving appliances, including Curchin-Endert punching tables, high-speed drilling machines, and suitable cranes. Special attention has also been given to efficient heating and the natural and artificial lighting of the buildings. Practically all machines are electrically driven, and there is ample installation of hydraulic and pneumatic power.

The mold loft, a very fine building 280 feet long by 70 feet wide, smiths' shops, and ship-fitting department are near by, while storage space for steel is suitably placed and served by overhead cranes for rapid handling.

In the joiners' shop, a building 300 by 100 feet, with side galleries, is to be found the most modern machinery, arranged in the light of the latest practice and for the most convenient and rapid working. The sawmill is fully equipped with the necessary plant and provided with extensive storage sheds for seasoning stocks of timber. Adjoining are the brass foundry and pipe-fitters', plumbers', and coppersmiths' shops.

Entirely constructed of steel, the engine shops are 1,100 feet in length and 165 feet in width and have an area of about 133,000 square feet. A similar range of cranes to that in the boiler shop is here provided, with lifting power up to 170 tons, and all the machinery, comprising some of the finest products of British machine-tool makers, has been laid down within recent years. There has recently been installed a machine of German design for dynamically balancing turbines.

The boiler shop, 500 feet long and 180 feet wide, with an area of 95,000 square feet, is well equipped with machinery for the construction of marine boilers. Here are to be seen special powerful hydraulic flanging presses, plate-bending and riveting machines, boiler planers and shell drills of the most recent types, a complete installation of water-tube boiler plant, including specially constructed multiple drilling machines, cranes with lifting capacities ranging from 140 tons downward, whilst in this, as in other parts of the yard, hydraulic and pneumatic power is extensively used in the various processes.

These shops are built alongside the fitting-out basin, thus affording splendid facilities for the rapid completion of vessels actually within the works. Entered by a sliding caisson 140 feet wide, and with a constant depth of water considerably over 30 feet, this basin has a quay space of about 3,000 lineal feet and is equipped with a floating crane of 200 tons capacity, a fixed crane of 150 tons capacity, and two traveling cranes of 40 and 35 tons, respectively. The area of the fitting-out basin is 14 acres.

The company carry on a very important repair business and have seven graving docks, ranging in length up to 860 feet, which, with the fitting-out basin already referred to, puts them in a particularly good position for carrying out all descriptions of this class of work. Ships of any size can be dealt with in the minimum of time, the docks being fully equipped with electric, pneumatic, and hydraulic power. Each of the two large graving docks is served by 40-ton traveling cranes; thus heavy machinery can be lifted out of vessels whilst they are undergoing bottom repairs. This important branch of the company's business is dealt with by a special staff.

B. AERONAUTICAL

1. Royal air force in Australia.

There has been much comment recently on the lack of efficiency in Australian aviation. Criticism does not extend to the civil branch, for which there is praise for its efficiency, its scope, and service rendered. Accidents in military and naval flying have been frequent in Australia. It is understood that a commission is at present investigating the matter. Evidence before the commission and all its proceedings are being strictly withheld from the public. The most spectacular of recent air accidents was one that occurred on the occasion of welcoming the Duke and Duchess of York to Melbourne. That was not an isolated incident. General opinion seems to be that the lack of safety in military and naval aviation in Australia is a serious question.

One reason which has been advanced for the occurrence of so many recent accidents is the fact that practically all military aircraft in Australia is old and much of it obsolete. Australia is still using many DH–9's and DH–9A's which were used for army cooperation work and bombing during the Great War. These machines were presented to the Commonwealth by the British Government at the end of the war.

In view of the situation outlined above, there was considerable favorable comment when the Australian Minister for Defense (Senator Sir William Glasgow) announced on August 14, 1927, that he had authorized substantial additions to the existing air force equipment, after consultation with the air board. A greater part of the authorized expenditure will be used for the purchase of the latest types of airplane engines and aircraft for the training of pilots, for army cooperation, and for day bombing as developed by the British Air Ministry. There was no announcement as to where the equipment will be purchased, the extent of the proposed expenditure, or of the number of machines, etc., which will be procured. Newspaper accounts presume, and it is reasonable to suppose, that the purchase will be made in England, as has been the custom in the past.

NOTE.—The above program becomes complementary to the Australian naval program of two 10,000-ton cruisers, one 6,000-ton aircraft carrier, and two 1,400-ton submarines, now being built.—ED.

GREECE

A. NAVAL

1. Launch of submarine.

The Société des Ateliers et Chantiers de la Loire at Nantes recently launched the submarine *Protee* for the Greek Government. The *Protee* is one of three submarines which this firm is constructing for Greece under contracts placed in November, 1925, and February, 1926. The other two are still on the ways.

The specifications of the *Protee* and its sister vessels are as follows: Over-all length, 230 feet; surface displacement, 730 tons; submerged displacement, 960 tons.

The vessels are powered by two Diesel-Sulzer engines of 985 horsepower each, constructed by the Chantiers de la Loire, and by two electric motors. The engines give a surface speed of 14 knots, with a cruising radius of 4,000 miles, and the motors a submerged speed of 9½ knots, with a cruising radius of 100 miles.

The hulls of the vessels are designed to withstand the pressure of submersion up to 250 feet. Each submarine is provided with three periscopes which permit a view of the surface of the water from a depth of 40 feet.

Individual armaments consist of eight torpedo tubes of 22 inches, a 4.1-inch gun, and a rapid-fire gun. Each vessel will carry a crew of 4 officers and 41 men. Among the outstanding equipment features are supersensitive microphones invented by Professor Langevin.

NOTE.—Turkey, in whom Greece is particularly interested, is building two submarines in Holland. The British have a naval mission in Greece for purposes of instructing and reorganizing the Greek naval forces.—ED.

ITALY

A. AERONAUTICAL

1. Comments on recent Schneider cup race.

As considerable has been published on this subject in the press and in technical papers, no attempt will be made to go into the features attending the race other than a few notes on its general aspects.

It is considered of great importance to note that the British endeavors which succeeded in the winning of the race harked back for at least two years. It has become more apparent with each passing race that the lapse of one year between races is detrimental to the best thought and effort in the way of the advance in plane and engine design. It would seem that England has proved this conclu-

sively by the recent achievement. There is no doubt that at this particular moment she is much more than one year ahead in racing seaplane development. It is most apparent, from information gleaned and observation of the planes and engines, that they are the result of long and painstaking wind-tunnel model tests. I was told that the models were not less than one year in the wind tunnel. The Italians, on the other hand, showed no marked advance over their planes and engines of the previous year. As concerned stream lining, their planes were manifestly inferior to the British. It is interesting to note that the Italians were very late with their Fiat engines, which were made on the same base dimensions as last year, but which had been increased in horsepower by increase in compression and displacement. The designer of the Italian planes had also, against the violent recommendations of the pilots, retained what appeared to be too much wing span, although this had been reduced from the previous year. Still further cuts were recommended but not considered, due to the designer's fears for the safety of the pilots. However, about the time that we asked for a delay in the race the nondelivery of the Fiat engines and the discovery of the reduced span of the British planes made our request most welcome to the Italians. With that delay authorized, they felt certain of getting their engines in better shape and they would have had time to have cut another meter from their wing span. In view of the nonpostponement, however, this was not possible, with the result that they were working on engines up to the very minute of the race.

I understand that the Fiat engineers throw the blame for the failure of their engines to the fact that after delivery to the Air Ministry the engineers of that office made changes and modifications in the delivered engines. Whether this is true or not I do not know. The pilots told me that the first three engines delivered were very good, but that later engines had been fitted with a lighter piston. It was the failure of these pistons which wrecked their engines and caused all their breakdowns. I could not determine who was responsible for the change of these pistons. The designers claimed 293 miles for the Italian planes, but it is quite certain that the Italians were so perturbed by the reports emanating from the British camp that they were capable of over 300 miles that the Italians started to tinker with their motors in a last-minute effort to get higher power out of them. Personally, I am convinced that the method adopted by the British throughout constituted a demoralizing factor for the Italians.

The British came into Venice with an aircraft carrier, a dreadnaught, a division of destroyers, two or three mine sweepers, and a very complete equipment both as regards personnel and material. They showed the utmost confidence and freely predicted tremendous speeds. They kept to themselves, were very strict in their internal

discipline, even to the extent of bringing their own guards, cooks, and messing arrangements. They did not mix at any time with the Italians, nor were the officers in the team ever allowed to eat except at their own mess. This line of conduct thoroughly impressed the Italians, and its effect was to cause much anxiety and disquietude. I have no doubt but that this attitude contributed largely to the ultimate defeat of the Italians.

There was considerable rivalry in the Italian camp, which resulted from the fact that Ferrarin is really a civilian flyer, having left the service to take employment with the Fiat people. Incidentally, he is a proper Fascist and I judge to be in greater favor with the Undersecretary Balbo than were either De Bernardi or Guasetti. I know that Balbo was much disturbed by the report that the British were able to turn the *Pylon* without gaining altitude. This was also Ferrarin's style, whereas De Bernardi and Guasetti made a turn which resembled somewhat a "split" (renversement). There was even pressure brought to bear at the last minute to cause De Bernardi to change his style of flying.

As regards the water work, there is no doubt that the Italians were superior to the British. The British pontoons were apparently primarily designed on aerodynamic qualities, with no concession made to their water-keeping qualities. The result was that the British planes were tremendously wet. In taxying a solid plume of water was thrown from the bows of the pontoons to twice the height of the plane, drenching thoroughly the whole plane. On the other hand, the Italian planes were quite dry and, except for the first possibly three seconds, the propellers were never struck with water.

It is of considerable interest to note the high compressions to which engine designing is tending. I was informed that the theoretical compression of Fiat engines was 7.7, but that actually 9 was achieved. The British air attaché said that the British claimed a compression of 8, but that he was not sure of the figure. I heard it rumored, and possibly with some truth, that the British compressions were a little higher than this. The geared engine certainly proved its ability in this race, and we can expect that such engines will be important factors from now on. One must also note the high crankshaft speeds employed in these modern engines. Although many seem to be impressed with monoplane design as contributing most to speed, it must be acknowledged that the biplane is still a factor in racer design. The Glouster plane did extremely well, and it is contended that it can develop more speed than the plane which won the race.

This race marked the first radical departure in engine design to the extent that the engine was plainly built for the plane rather

than the plane for the engine. Everything dsadvantageous to stream lining was discarded (I am now speaking of the Napier engine), all accessories were placed either ahead of or in the rear of the cylinder banks with the induction carried over the top of the bank. Although informed that no supercharger as such was incorporated in the design of the engine, and I was not able to see anything resembling a supercharger, still it must be noted that with the carburetor intakes placed as they were in the leading edge of the wings, considerable pressure through the carburetors was given by this design. Another factor which was carried to an extreme this year was the reduction of instruments, such as gages. In other words, all extra piping which by its fracture might cause a breakdown was eliminated. Another point of interest in the British plane (*S–5*) was the fact that the cooling water was placed inside the wing in such a manner that the lower skin of the wing formed one side of the radiator. I heard that the British pilots were considerably troubled by the exhaust gases from the central bank. One pilot during the trials suffered severe gassing on at least two occasions, sufficient to force him down. The failure of Kinkead has been attributed to that as well as to the loss of a spinner. The exact cause I have not yet been able to determine.

The race was tremendously advertised in Italy, and on Sunday, the day originally set, Venice and the Lido were utterly jammed with spectators of all classes. Fifty per cent reduction was offered on all public transportation and everything was done to interest the man in the street. As a matter of fact, this phase of the affair was overdone, or at least was not properly done, because the man in the street was not prepared for an Italian defeat. It was remarked that for a week or more after the race the newspapers devoted considerable space and effort to convince the public that the loss of the race was not a national calamity. The people took the loss extremely hard. I understand that the loss of the race resulted in tremendous discord within the Ministry and between the Ministry and the Fiat engineers. It is too early yet to know the total effects on Italian plans of this year's race, but there is reason to believe that they will make a decided effort to come back.

NOTE.—The results of the Schneider race were enthusiastically received in Great Britain, where they were interpreted as a vindication and proof of British planes and aeronautical ability. The race next year will, of course, be held in England.—ED.

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2. *Air maneuvers.*

The Italian Air Force undertook their first air maneuvers in September, 1927. While the maneuvers as such do not hold particular material or organization information of great value, they

are nevertheless of interest for school study inasmuch as the movements of air masses for both army and navy have some features in common.

These maneuvers being the first ones on any ambitious scale, should not be critized too rigorously. It is true that they were more or less elementary in conception and execution; there were many ragged ends and there was considerable lost motion due to inexperience both on the part of the staff and on the part of younger officers who lacked experience and study along these lines.

The scene of the maneuvers lay to the north of the Po Valley. The forces engaged in the exercises were known as the "Blue Force" and the "Red Force," the Blue Force being situated in the western part of the territory and the Red Force in the eastern portion of the territory. The boundary used for the exercises dividing these two forces ran from Passo di Recia (on the Swiss frontier) to Passo della Mendola, thence to Cima d'Aosta, to Altopiano dei Sette Communi toward Monte Berici, Colli Euganei to Rovigo, and thence to the mouth of the Po River.

The forces engaged were as follows:

For the Red Party: From Campoformido, the first fighting wing; the fourteenth wing of mixed bombardment based at Ferrara, and in addition the One hundred and ninety-second Marine Bombardment Squadron, normally based at Pola; also one section of long-distance scouting planes.

On the part of the Blue Party, there was the second fighting wing, the seventh night bombardment wing, and the thirteenth wing of day bombardment. There was also in addition one section of long-distance scouting planes. In all, there were approximately 220 machines taking part in the maneuvers, including those assigned to observers and umpires.

It might be noted that all the planes engaged in these exercises were of the latest service types available, and that there are no newer types scheduled for issue to the service during this coming year. On the last day they were to attack targets in live bombing in a zone specially prepared. Much importance was attached to this live bombing, even to the extent of the appearance of the King to witness it. The targets attacked were as follows:

Target No. 1 was an aviation camp traced on the ground in white lime.

Target No. 2 was an ammunition depot similarly traced on the ground.

Target No. 3 was a railroad station likewise designated.

Target No. 4 represented a central electric power plant.

Target No. 5 was an artillery emplacement.

Target No. 6 consisted of the outline of a bridge of the largest type.

Target No. 7 represented a railroad terminal or yard and was actually constructed of full-scale tracks, etc.

Target No. 8 likewise was actually constructed to represent a railroad crossing.

Target No. 9 was the trace of a concrete bridge.

Target No. 10 consisted of a single line of railroad track actually constructed.

The live bombing took place on the morning of the last day of the exercise and was followed by a review at Aviano by the King of all the planes employed. The review consisted of marching past machines lined up wing to wing and extending in two and three ranks for a distance of over a mile. The material equipment appeared to be in excellent shape, but so far as could be noted the ordnance equipment, such as bomb sights and machine guns, did not offer anything in the way of advancement or novelty over what we already know. The review was followed by a collation. Besides the King and his immediate suite, all the responsible heads of the Government, with the exception of the Chief of the Government, were present. No flying was attempted at this review. The following day, in the afternoon, there was held a critique by the commanders in charge, but this critique was more in the nature of window dressing than anything else; many flowery speeches were made extolling the ability and intelligence of those in charge.

The exercises started at noon, September 15 (Thursday), following a conference of umpires during the morning of that day. Attachés and official Government observers were directed to report not before the afternoon of the 15th. These officials were met at the depot by general staff officers, who provided transportation and quarters at the various hotels near and around Padova and Abano. The staff issued pamphlets and mimeograph sheets detailing the exercises and problems and delivered a talk on these that same afternoon. It was learned that the class of 1905 (three sections covering certain districts not necessarily covered by the maneuvers) was called as an experiment and test. The procedure was as follows: Air Ministry telephoned to Army Ministry, which in turn informed the headquarters of districts concerned. These officers listed the proper personnel and notified the podestàs of communes (mayors of villages, etc.); carabinieri called each man out. Posters were displayed of instructions giving details of embarkation, using regular trains. Within 27 hours all the draft of eight hundred and odd had reported to central depots except two (one had died and the other had emigrated without authority). Within seven hours from reporting all members were outfitted and on their way to assigned billets. The inspection

of airdromes and squadrons by the staff indicated that the absorption of draft was complete and smooth. It is understood that the staff was highly pleased with the results of this test. Everything pointed to careful thought and preparation on the part of the staff for these maneuvers. Apparently the ground personnel executed the mobilization smoothly and efficiently. Local militia units were employed in the auxiliary services, lookout, communication, supply, etc.

The exercises over the 16th were to be viewed from Mount Venda, a hill about 2,000 feet high. However, bad weather came in and very little was seen from this point. Due to the low ceiling encountered and the nonenthusiasm of umpires and observers who had to climb this mountain on foot at 4 or 5 o'clock in the morning, this observer's station was given up for the remainder of the exercises. The night bombardment force from Ghedi undertook to bomb Treviso, Aviano, Venice, and Padova during the night of the 15th–16th. It is claimed that this maneuver was a success, but of course nothing could be actually seen of this flight. The exercises on the morning of the 16th consisted of a stationary fighting patrol extending from Valdagno to Badia on the part of the Blue Forces, through which the Red Forces were to send a day bombardment group supported by pursuit. At the same time the Red Forces were sending a long-distance scouting force unprotected from Aviano to Milan and back by way of Bologna. The Blue pursuit patrol was completely boxed in this maneuver, inasmuch as they had taken station at about 10,000 feet while the enemy bombardment (Red) came in under the clouds at about 3,000 feet. As far as could be observed from Mount Venda, the bombardment groups had lost their supporting pursuit escort and the bombardment formations were very ragged. Several single machines were observed from time to time.

The afternoon exercises were to have consisted of massed bombardment by both Red and Blue, starting from Aviano and Ghedi, respectively, to pass through stationary and protective pursuit patrols. This exercise failed to materialize, due to dirty weather and low ceiling.

The exercise on the morning of the 17th was witnessed from the airdrome at Padova. The first part of the exercise was a study of an action by pursuit made over enemy territory in gaining control of the air over a designated sector. This action is to clear the air in preparation for a day bombardment group escorted by combat planes which is to pass over the sector 15 minutes or half an hour later. This action was all on the part of the Blue. Due to a low-hanging fog over the field, nothing was seen of the Blue bombardment group, although their passage was audible from the ground. Shortly after this the fog lifted and showed the escort of Blue pursuit, and later on

the defensive Blue pursuit patrol was observed. The attack was successful in filtering through the defense with little trouble. The alert group (Red) at the airdome was badly handled. The engines were not warmed up and the pilots were not at hand. When the bombardment (Blue) was heard overhead no planes were sent up to reconnoiter, nor was any attempt made either to push the squadron up through the 300 feet of fog nor to have it ready to take the air the instant the fog lifted as it did a few minutes later. It was furthermore noticed that considerable difficulty was experienced once the squadron did get away in rendezvouing. Rendezvouing and formation work were extremely ragged. Considerable difficulty was also had in manipulating the ground signals. The personnel gave evidence of no training in this regard.

The second exercise on the 17th consisted of a long-distance unescorted scouting flight followed by the study of a protective patrol by pursuit guarding the home station through which a bombardment group must pass to its destination. This exercise could not be viewed from Padova and no information of value as to the success of the problem was obtained. The same is true of the last exercise of that day, the protective pursuit patrol maintained over Ghedi and the bombardment from Aviano.

On Sunday, the 18th, no aerial maneuvers, but a problem in movement was assigned the squadron of pursuit located at Gardola. This squadron was suddenly transferred to Padova with all its equipment. The planes were, of course, flown down while the ground troops loaded the temporary hangars, workshops, supplies, etc., into motor lorries and trailers and animal-drawn wagons. The first units began to arrive at Padova on the morning of the 19th. No opportunity existed to check this maneuver for magnitude nor completeness of execution. The air staff did not seem to find this maneuver more than just satisfactory.

The first problem on the 19th was one of rendezvous in flight at designated points by units combining in a major offensive. Night bombardment employed as day bombardment left Aviano escorted by a pursuit. Over Padova the pursuit stationed at that point was to join up. Standing on, this force was to effect junction with a squadron of seaplane bombers over Sermide. Thence the combined force was to attack Mantova and return to respective stations. So far as could be judged, the maneuver was carried out as per schedule. The pursuit at Padova was a little late in getting away. No recognition signals could be discerned, and how the bombing force differentiated (if that was done) between their allies at Padova and the attack group at Mantova could not be learned. The junction of the seaplanes at Sermide could not be observed, but we were told that the junction was carried out.

The second exercise was to try out the success of the scout plane in radioing back the take-off, the formation and direction of an enemy bombardment offensive. The success of this likewise could not be observed.

On the afternoon of the 19th all observers moved up to Udine, arriving during the night, and at 4 a. m. of the 20th to a prepared target range north of Vivaro (the targets have been described above). It might be said that the targets were all placed too close together, making it extremely difficult to determine whether the targets aimed at were actually hit. This difficulty was further augmented by the fact that the program was not carried out in the order given. From the viewpoint of the spectator, the result was most confusing. It was not possible to check up accurately as to whether the attacks were successful or not. This difficulty extended not only to the matter of the target but also to the number of effective and dud bombs released on each flight. A large stand had been erected for the use of the King and numerous notables who witnessed the bombing. The bombing flights followed a general east-and-west course and bombs were dropped from both directions. There was a very slight breeze from the east which was not sufficiently strong to dissipate the dust plumes for many minutes. Observers were not permitted to view the targets after the bombing, although the King was taken in a car to the scene of some of the nearest targets. This office, however, has been promised photographs.

In general, the bombing show was not run off well. There were long delays and many apparent mistakes. Bombing conditions were good and no bombing took place over 6,000 feet. Formations were very ragged, and many times the formation was represented by one craft, the rest apparently not having been able to take the air in time. All bombing was individual, apparently, except for one or two flights of day bombers carrying many small bombs; these were released on signal.

Following the bombing all parties moved over to Aviano, where the squadrons engaged in the exercises during the preceding week had been summoned. About 200 to 250 planes were assembled in ranks two and three deep, the front extending for about a mile. The planes appeared to be in excellent material condition, clean, and well groomed. No attempt was made to take off any flights, the review consisting in the King and observing party walking past the lines of planes. No artillery over .30 caliber was observed. The bomb sights on the *Caproni*s were of light construction, placed over the side on the starboard bow in the forward cockpit. The sight consisted of four or five parallel steel threads with sighting beads on vertical posts. The sight is no improvement over our oldest bombing sights. Bombs appear to be released manually, one strap of cable holding the bomb

in position while the tail of bomb sets against a stop fitted to the plane. Pilot-directing lights are used to steady the pilot on desired course.

Comment: In general, one received the impression that the staff and general officers were satisfied with the success of the maneuvers. Some criticism was heard from junior flying officers on the manner of execution of problems, but none on the problems themselves. Considering that these maneuvers were the first ambitious attempt, it would seem that they were fairly successful. It would appear to an outsider not fully conversant with all orders, last-minute changes, or communications that coordination of effort and liaison were not of the best. The younger officers (this includes the squadron commanders) did not seem to take the problems very seriously. Execution seemed rather leisurely done. In general, the national characteristics were evident in that effort was individualistic and temperamental; little ability to organize and little concept of coordination were disclosed. Control of units once in the air was apparently not attempted and control between air units within the same group appeared to be lacking.

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3. Mobilization of civil aircraft in time of war.

In view of future development of civil aviation in Italy, the Air Ministry has decided that the use of commercial planes must be considered as an auxiliary to the military air strength and available for war operations in an emergency. The principle is the same as that adopted for the merchant marine which, in case of war, is transferred to the Navy Department, armed, and used for military operations. The following two decrees have been worked out by the Air Ministry and determine conditions to be fulfilled by commercial planes in Italy, in view of their military employment in case of war:

No. 1.—Royal Decree 104, dated January 13, 1927

ARTICLE 1. In case of mobilization the Italian Government has the right of requisitioning all civil aircraft, which will form an auxiliary military mass.

ART. 2. All contractors and owners of said aircraft must fulfill, in peace time, the rules and regulations which will be issued and determined by a subsequent decree, in order to permit rapid transformation of civil planes into military machines adapted for war operations.

No. 2.—Royal Decree 1234, dated June 9, 1927

CHAPTER 1

CREATION OF THE REGISTER OF AUXILIARY MILITARY AIRCRAFT

ARTICLE 1. The register of auxiliary military aircraft will be created as per July 1, 1927. Said register will be kept by the Air Ministry, General Staff Office.

ART. 2. Auxiliary military aircraft are intended for special war services in connection with the military forces of the "Regia Aeronautica." On mobilization being ordered, auxiliary military aircraft become a part of the R. Aeronautica itself.

ART. 3. The register of auxiliary military aircraft includes three categories:

1. Night bombardment machines.
2. Miscellaneous machines.
3. Dirigibles.

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CHAPTER 2

CONDITIONS TO BE FULFILLED BY CIVIL CRAFT

ART. 5. All machines inscribed in the first category (night bombardment) must have characteristics similar to those of military night bombardment planes, in particular those concerning the engines, maximum and minimum speeds, climb, and endurance. In addition to being permanently equipped with navigating lights and radio sets (as prescribed by rules for commercial navigation) they must have been so built, in view of their auxiliary use for war operations, as to permit immediate installation of the following additional equipment:

(*a*) One photographic camera.

(*b*) Defensive armament (machine guns) identical to that of military night bombers.

(*c*) A bomb sight.

(*d*) A bomb rack, capable of transportating a bomb load which will be determined by the armament section of the air force, for each machine.

(*e*) Additional gasoline and oil tanks, if necessary, in order to attain a required endurance.

ART. 6. Machines inscribed in the second category (miscellaneous) have very different characteristics from each other. Their auxiliary employment will be determined by the Air Ministry, for each machine individually.

ART. 7. Dirigibles, inscribed in the third category, in addition to being permanently equipped with navigating lights and radio sets (as prescribed by rules for commercal navigation) must have necessary fittings on board for installing:

(*a*) One photographic camera.

(*b*) Defensive armament, to be determined by the ministry.

(*c*) A bomb sight.

(*d*) Bomb racks for carrying a predetermined load of bombs which will be determined by the Ministry in accordance with the characteristics of the dirigible itself, such as volume, climb, velocity, endurance, and useful load.

(*e*) Additional gasoline and oil tanks, if necessary, in order to attain a required endurance.

ART. 8. For all three categories fittings and arrangements must be such as to permit installation of additional equipment in a minimum period of time of eight hours.

CHAPTER 3

INSCRIPTION OF CIVIL CRAFT IN THE REGISTER OF AUXILIARY MILITARY AIRCRAFT

ART. 9. All civil machines which were inscribed in the National Aeronautical Register on July 1, 1927, and all machines which will be inscribed after said date, belonging to private owners or companies of any kind, will be inscribed by law in the register of auxiliary military aircraft.

ART. 10. The Air Ministry will notify the owner of said inscription.

ART. 11. On being inscribed in the register, the aircraft must be marked, at the owner's expense, with a special mark as described hereafter.

ART. 12. The mark consists of a five-point star inscribed in a circle 20 centimeters in diameter.

Said mark will be painted on both sides of the rudder, in the upper half and well in the center, the color of said star to be:

First category	red.
Second category	green.
Third category	black.

ART. 13. The Air Ministry will inspect periodically all auxiliary aircraft in order to ascertain its efficient condition and check that the rules contained in the present decree have been fulfilled.

ART. 15. Civil aircraft inscribed in the register of military auxiliary aircraft can not be sold or ceded abroad without authorization by the Air Ministry.

ART. 16. Aside from the conditions specified in "Rules and Regulations Governing Aerial Navigation in Italy," navigability certificates will be released only when the following additional rules are fulfilled:

The Air Ministry will ascertain that rules contained in articles 6, 7, 8, and 9 of the present decree have been complied with.

A series of test flights with complete military equipment must be carried out.

ART. 17. Private aircraft designers or factories must, when planning the construction or modification of a civil machine, inform the Air Ministry of the expected flight performance of the machine planned, together with useful load data.

The Air Ministry will establish the bomb load and endurance of the ship, when used for military purposes, in accordance with articles 5, 6, 7, and 8 of the present decree.

Private designers or factories may request from the Air Ministry blue prints of photographic cameras, machine guns, bomb racks, bomb sights in use in the R. Aeronautica, as well as any other information which might be necessary for the project and design of the machine.

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CHAPTER 5

RULES IN CASE OF MOBILIZATION

ART. 20. In case of mobilization or of imminent mobilization (total or partial) requisition of civil aircraft, inscribed in the register of auxiliary military aircraft, will take place as specified hereafter.

ART. 21. All civil machines or only a part of them may be requisitioned. Orders for requisition are issued by the Air Ministry and transmitted to the owners by personal notice or made known by means of street posters.

ART. 22. The Air Ministry has authority to grant exception from requisition to certain special machines for certain industrial needs. Such exceptions, however, are only temporary and may be revoked at any time.

ART. 23. From the moment mobilization is declared no auxiliary military aircraft will be permitted to leave the field where it is parked without authorization of the Air Ministry, nor may it be sold, ceded, or exchanged. Such obligation holds until otherwise decided by the Air Ministry.

ART. 25. The owner of a machine which is not inscribed in the register of auxiliary aircraft on account of the fact that it had not been inscribed in the

National Aeronautical Register must within 24 hours from the date of publication of the requisitioning posters report his machine to the headquarters of the territorial air zone which has jurisdiction over the locality where the owner normally lives.

NOTE.—The above decrees are elements in the structure which Mussolini is apparently building of government control over all phases of life and particularly over all activities directly or indirectly relating to war. These decrees are especially interesting when read in conjunction with a decree published in the "Bulletin" last April regulating the building of merchant ships so as to make them suitable for naval purposes.—ED.

B. POLITICAL

1. Italian foreign policy.

The recent declarations made by Signor Mussolini to the Fascist Legions are described in Paris as vague but violent, and they have confirmed the French alarm that the Dictator may some day find himself involved in a military adventure against his will. It is realized that he finds it necessary to maintain the spirit of his troops to the proper pitch of patriotic enthusiasm, but it is felt that this enthusiasm may run away with his followers. That this is a danger is shown by the Italian press and by the army who are outrunning their chief and seeing in the visit of the Duke of Udine to Tangier a confirmation of their wish for an extension of Italan influence in the Mediterranean "from Tangier to Damascus."

That these excessive manifestations of Italian aspirations have not passed without notice may be gathered from the fact that precautions have been taken on the French southeastern borders which have been reinforced, and General Mittelhauser, one of the most energetic officers in the French Army, has been put at the head of the defense forces. Garrisons have also been reorganized in Corsica, from which island French forces were withdrawn many years ago.

It is believed in Paris that French fears are shared in Berlin, where it is realized that any European disturbance would seriously halt German progress. Fearing that Italy's policy may stir up trouble in the Near East, Germany has become more conciliatory toward the Little Entente in the hope of strengthening the status quo throughout the Balkans.

NOTE.—The above article touches upon two events which, in the eyes of Europe and the European press, have become magnified since the above was written.

The visit of the Duke of Udine was made to Tangier on board an Italian man-of-war on the recent occasion of the fifth anniversary of the advent of the Fascism. As such it was interpreted in Europe as very significant not only because of its time, personage, and manner but because it was made to Tangier. The visit of the Prince has been likened, in some quarters, to the famous visit of the German gunboat "Panther" to Agidir in 1911.

Tangier has for many years been in an anomolous condition. Its importance lies in its strategic position on the Straits of Gibraltar and in the access which it affords to the interior of northwest Africa. Spain, Germany, and France wrangled over the question before the war. In 1923 a conference was called by France in an endeavor to settle the status of the city. England and Spain were invited, but Italy was excluded. The conference resulted in little, and Spain, France, and, to a less extent, England have since been endeavoring to come to an agreement in regard to the administration of this city. Hence, the visit of such a personage on a warship, upon such an anniversary, has been interpreted as indicating the determination of the Italian Government to insist upon a share in the future of the western Mediterranean, if not of Tangier itself.

The second event of recent importance, with which the above article is related, is the signature of the French-Yugoslavian treaty. France has been negotiating for over a year with Yugoslavia for a treaty which amounts to a defensive alliance. France desired such a treaty to round out her alliances with Poland, Czechoslovakia, and Rumania and was willing, if not desirous, that Italy join with her in its signature. Instead, Italy signed a treaty with Albania last summer which, in some quarters, was said to make Albania merely a protectorate of Italy. So on November 11 last France signed a defensive alliance treaty with Yugoslavia which has considerably aroused Italian ire and apprehensions. The latter looks upon the action of France as one calculated to encircle Italy and obstruct her progress in the Balkans. Both France and Yugoslavia denied this. Not content with this, however, Italy, in the latter part of November, concluded another treaty with Albania, binding the latter country to her in a defensive alliance for a period of 20 years. The French-Yugoslavian treaty is for five years.

Hence, the December meeting of the Council of the League opened to find, just concluded, these two opposing sets of alliances, each claiming peaceful intentions, each doubting the intentions of the other, and most of Europe, apparently, skeptical of them both.

Europe, it would seem, is returning rather rapidly to its age-old system of opposing alliances, creating of a balance of power, with Great Britain straddling as she does, all opposing factions.—ED.

C. MISCELLANEOUS

1. Italian shipyards.

By constructing 1,966,000 tons of shipping during the period 1924–1927, Italy assumed fourth place amongst the mercantile marine nations of the world. There was considerable competition engaged in by the numerous Italian shipyards for this business and the industry thrived. Now that the boom has been dissipated and there is a depression in shipbuilding, as well as in some shipping circles, the question of the utilization of the shipyards is a live issue. The present tendency in Italian industry is toward combination and centralization. In shipping circles, this has assumed the form of rumored cartels of the various big lines (of which none, however, has as yet become a fait accompli), to reduce operating expenses. The Government appears to favor this practice, particularly if it meet the national economic necessity and the national policy de-

mands that industry be so organized as to permit of hasty mobilization for emergencies and to prove of ultimate use to the State.

The shipyards being linked inalterably to the navy, their efficiency and capacity is of vital national interest and their readiness to meet a national emergency is a prime necessity.

The subsequent survey of the situation entitled "Naval construction" was translated from *Realta*, published in Milan and devoted to national problems.

Naval Construction

The shipyards of Italy which are employed in naval construction may be divided into the following categories:

(1) Yards which have constructed naval units before the war.

(2) Yards which only after the war undertook the construction of naval units.

(3) Yards which, although they have not constructed naval units to date, desire from now on to compete in this construction.

(4) Yards which should have the equipment to permit them to compete in construction.

Yards belonging to the first of the before-mentioned categories are:

Liguria

(1) Cantiere Odero of Sestri Ponente; highest order, complete, adapted especially to the construction of light cruisers and surface craft; has its ways on open sea.

(2) Cantiere Odero on an inlet at Genoa; highest order, already in the center of a populous city and with large ways on the open sea.

These two yards are near to excellent outfitting plants within the port of Genoa.

(3) Cantiere Navale Ansaldo; highest order, adapted to all sorts of naval construction; has large ways on the open sea.

In the unfortunate dismemberment of the Ansaldo organization, the splendid outfitting plant which was, in the port of Genoa, an indispensable complement of the shipyard, has been ceded to the Navigazione Generale Italiana which controls a majority of the stock.

(4) Cantiere Navale Ansaldo; S. Giorgio at Muggiano in the Gulf of Spezia. It is the best arranged shipyard of the Tyrrhenian Sea; it has all the requirements necessary to a perfect systemization for any sort of naval construction and it has world fame for its submarines which it has supplied, exclusive of Italy, to eight nations.

TUSCANY

(5) The shipyard Fratelli Orlando at Leghorn; highest order in every regard, adapted to any sort of naval construction.

The shipyards Odero Foce, Ansaldo S. Giorgio, and Orlando are controlled by the Terni group, that is, by the Banca Commerciale Italiana.

The Cantiere Ansaldo of Genoa is controlled by the Credito Italiano and by the Banca Nazionale di Credito.

CAMPANIA

(6) Cantiere Navale Pattison of Naples, specializing in the construction of destroyers for which it has age-long and international fame. It is controlled by the Credito Italiano and by the Banca Nazionale di Credito.

PUGLIA

(7) Cantiere Navale Tosi, at Taranto, specializing in the construction of submarines. A considerable block of its shares belongs to a shipping group in Venezia Giulia.

VENEZIA GIULIA

(8) The shipyard of Monfalcone; it is the most modernly equipped yard in Italy because, following a sane plan, it was refitted after the war by broad, rich, well-considered ideas of the greatest efficiency; it is capable of constructing any type of naval vessel with the greatest rapidity. It belongs to the Cosulich group.

(9) The shipyard Stabilimento Tecnico Triestino at Trieste; first class in every respect.

(10) Cantiere Scoglio Ulivi, at Pola. Has constructed naval vessels for the Austrian Government.

(11) The shipyard Quarnaro, at Fiume; highest order, well and modernly equipped, and has constructed military units for the Austrian Navy.

The shipyards Stabilimento Tecnico Triestino and that at Pola are controlled by the Banca Commerciale; the shipyard of Quarnaro is controlled by the Credito Italiano and by the Banca Nazionale di Credito.

The following yards belong to the second category: (*a*) Cantieri Navali Riuniti; (*b*) Cantieri Navali del Tirreno. Both belong to the Piaggio group and, besides having the best equipment in the port of Genoa, they have for their use the modern and efficient shipyard of Riva Trigoso (which has ways on the open sea); the shipyard

of Palermo, well equipped and organized, and the shipyard of Ancona.

To the third class belong the following shipyards:

(12) The federal shipyard in Liguria, on the open sea.

(13) The shipyard of Baia (Naples), belonging to the Navigazione Generale Italiana.

(14) Cantieri Navali Napoletani at Naples.

(15) Cantiere Navale Breda, at Venice.

The subsequent yards belong to the fourth category:

(16) The shipyard Cerusia, at Varazze.

(17) The shipyard S. Rocco, at Trieste.

From this list it is seen that the Italian industrial means for naval construction are too numerous and over adequate, more so in consideration of the fact that there are in operation the Royal Marine Arsenals of Spezia and of Castellammare; the other military centers having been reduced rationally to simple arsenals of refitting.

And as there are too many yards for naval construction, so there are too many plants for the construction of equipment for outfitting and arming the units.

I cite some examples.

We have three large naval gun factories: Ansaldo, at Genoa; Ansaldo-S. Giorgio (formerly Officine Vickers-Terni), at Spezia; and Armstrong, at Pozzouli.

Large marine internal-combustion engines are constructed in Italy, as follows:

(*a*) By "Fiat," at Turin, which company was a pioneer in this industry, beginning some 20 years ago, investing millions, and creating the highest Italian type of engine.

(*b*) By Tosi, of Legnano, which makes excellent motors, four cycle, Italian type.

(*c*) By Ansaldo (Genoa), which pays royalty to "M-A-N" of Hamburg.

(*d*) By Stabilimento Tecnico Triestino, which pays royalty to Burmeister and Wain, of Copenhagen.

(*e*) By Quarnaro, which pays royalty to Krupp.

(*f*) By Sultzer, of Winterthur, which has a plant near Milan.

I could continue to cite additional notes in other lines.

From this chronicle may be deduced the following elementary considerations:

(*a*) To construct well, rapidly, and economically it is necessary to have faith in firms really specialized, seeking ever to improve them, encouraging them with orders, with prizes for effected innovations, and even contributing to the expense of experience and research.

(*b*) To continue to pulverize orders for few units of many types between numerous shipyards, placing them in a constant prejudicial competition of cut prices, is fatal and, we may say, gradually reduces naval industry to misery and destroys this treasure of knowledge, of practice, and of energy now accumulated.

(*c*) It is an illusory and ephemeral victory in having excessive reductions of prices, dropping to less than cost, and its inconceivable to believe that people seized by the throat can produce well, nobly, and robustly those naval units which are efficient only when constructed without economy.

To-day naval construction in Italy, when it does not represent a heavy loss, affords a remuneration much inferior to that permitted by more simple mercantile construction, for which no risks are run and the expensive difficulties of naval construction need not be overcome.

Real economy is realized when ships are ordered after a definite idea has been conceived of how the finished vessel should be and then carrying on construction without making continuous modifications during the progress of the work.

The conscript crews of brief enlistments serve to complement the regular crews and often, albeit in good faith, ruin expensive material which they must employ after but hasty instruction and the use of which too often they come to know well only at the moment of leaving the service.

It is absolutely impossible to maintain all of the shipyards of the first and second categories in efficient condition by domestic orders alone, and therefore it is indispensable to facilitate construction for foreign navies.

Foreign orders will be obtained if the shipyards will really specialize and will organize themselves financially and commercially without tearing each other to bits and each one desiring all the work.

Each one, for a definite reason, chooses its own specialty and strives to perfect it, making it advance by the best possible means to permit the quotation of most favorable prices with rapid delivery.

GERMANY SHOWS THE WAY

I wish to fix this idea with an example along one line which I have studied profoundly and which I know well.

Germany before the war had made a study of one type of submarine which after long and exhaustive tests was chosen as the standard type.

Of this type a large number was not ordered built, nor did the Government have in mind "playing the fox," apparently, in improving business by ordering many ships then and there in the hopes of

having a reduction in price on each single unit, but it prescribed to the specialized firms selected the necessity of having a complete equipment of machinery for the construction of their boats, their engines, etc., in order that they, at the first intimation, might be able to produce the type of standard submarine at a given price and in minimum time, which type nobody had authority to change in the slightest detail and which type was well known even to the personnel of the naval reserve.

For this mobilization of materials, very large indemnities were given and this money did, unfortunately, render returns a thousand for one.

This concession is the protoplasm of real organization and sage foresight.

As had been done in the case of submarines, provision was made for destroyers, for guns, for torpedoes, for mines, etc.

A real industrial organization is now being created, having this policy clearly and precisely in mind.

If my information is exact, only recently the Minister of National Economy in Germany, or he who was in charge of this interest, in agreement with the military ministers, having shown that there was an excess of shipyards, called together the controllers of these yards—that is, the holders of the shares, the bankers, etc.—and told them, without hesitation, about as follows: "Gentlemen, you are too many, you duplicate your efforts, you must regroup and specialize and some must close." After a full discussion, a regrouping of yards was accomplished.

The formula must be a few specialized, first-class plants, like the best abroad, sustained and prepared, efficient for war, with orders which permit continuous work, equally and liberally remunerated in keeping with the policy of economy of public funds.

By regulating the industry in that direction the interests of all will be served.

I congratulate myself that we also shall succeed in persuading the interested parties of the absolute necessity of adopting a similar line of conduct and that we may accomplish it now whilst the nation has a strong, illustrious, active government.

NOTE.—The merchant marine and navy of Italy, under the paternalistic policy of the Fascist government, are very closely related. No merchant vessel can be built without the Ministry of Marine approving of the hull design so as to enable it to mount a 5.1-inch gun; all merchant marine skippers are only appointed with the approval of the government. Italian naval officers serve on board merchant ships; the State gives constructional and operational subventions and subsidies, and etc. In the above discussion of the effects of excessive numbers of shipyards and their nonspecialization, there are lessons for every nation, our own included.—Ed.

JAPAN

A. NAVAL

1. Completion and launching of ship.

The cruiser *Kinukasa* which was under construction at the Kawasaki Dockyard, Kobe, was completed September 30, 1927, and the following officers were assigned to her:

Line corps:	
Captain	1
Commander	1
Lieutenant commanders	4
Lieutenant	1
Lieutenants (junior grade)	4
Ensigns	4
	15
Engineer corps:	
Lieutenant commanders	2
Lieutenants	2
Lieutenant (junior grade)	1
Ensign	1
	6
Medical: Lieutenant commander	1
Paymaster: Lieutenant	1
Total	23

Submarine I–63 was launched at the Sasebo Navy Yard on September 28, 1927.

NOTE.—The "Kinukasa" is of 7,100 tons, mounts six 8-inch guns in three turrets, four 21-inch torpedo tubes and has a contract speed of 33 knots. Her single sister ship, the "Aoba," was also completed in September. The "I–63" is of 1,400 tons surface displacement and has a surface speed of 20 knots. There are over a dozen of this class of fleet submarines. Our light cruisers have an average officer complement of about 28, however, with a great many more ensigns than the "Kinukasa" carriers.—ED.

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2. Trip on destroyer "Shimakaze."

The following is submitted following an eight-hour passage on the Japanese destroyer *Shimakaze* from Yokohoma to Shimoda and return to Yokosuka. The occasion for this trip was the unveiling of a monument to Townsend Harriss (first American envoy to Japan), at Shimoda October 1, 1927.

Displacement.—Rated normal displacement 1,345 tons. The chief engineer of the ship, speaking in Japanese to a member of the American party on board, stated that the vessel "displaced 1,800 tons."

She was a much larger looking craft in every way than our standard 1,215-ton destroyers; higher forward; greater beam forward of the bridge; more steady in a seaway. With the wind aft, force 4, moderate following sea with white-caps, speed 18 knots, the vessel had practically no roll. Heading into the same wind and sea, speed 20 knots, the ship was remarkably steady, the contrast with behavior of our destroyers under similar conditions being marked.

Battery.—The comparison between the broadside of this vessel with four 4.7-inch guns, to a broadside of three 4-inch guns on our destroyers, needs no comment. No antiaircraft battery except machine guns. Six torpedoes stowed in three twin center-line tubes. No spare torpedoes carried. Depth-charge tracks and mine tracks aft. There were no depth charges visible on the ship and no depth-charge projectors, but there were about 30 small mine cases stowed under the bridge. All torpedo tubes, guns, and searchlights were covered up. It could not be determined whether director gear was installed, but no directorscope could be located. It is believed that this vessel has no director installation.

Engineering.—The naval attaché was permitted to inspect the engine rooms. All main engines and auxiliary machinery are in one large compartment with no water-tight subdivision. Two sets of Parsons turbines, each consisting of one high-pressure and one low-pressure turbine, geared to propeller shaft.

All auxiliary machinery of Japanese make. Main condensers located under floor plates. Steam lines tight; no water or steam leaks. Engine rooms clean. Every evidence of an efficiently operated plant.

Material condition (topside).—Main decks covered with linoleum, which appeared tight with no evidence of corrosion underneath. Paint work thick in many places, and evident need of chipping and scaling. Water-tight gaskets in good condition. No evidence of rust or corrosion. Boats in only fair condition, not very clean, and needed painting. Standing rigging needed tarring. Ship had no guard rails along sides at water line. From smooth appearance of sides of the ship, no dented plates, it is not believed that destroyers are put alongside of docks to the extent that ours are.

Radio.—Radio room located under bridge.

Personnel.—This vessel had been in a reserve status and recently had been fully manned to participate in the coming fleet maneuvers. Officers and men presented a smart appearance, and everything was very businesslike. Men were exceptionally well uniformed, clothing trim and clean. Men saluted all officers when passing on deck. It was noted that men always went up ladders on the double.

General.—The general impression after a day spent on board this destroyer was very favorable. In general design, arrangement, mate-

rial condition, personnel, and ship handling she appeared to be a highly efficient destroyer unit.

NOTE.—The "Shimakaza" was completed in 1922, together with the other six boats in her class.—ED.

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3. Mine-laying plans and activities.

In the formulation of war plans covering (1) the maintenance of communications with the Asiatic Continent (2) the closing of the entrances to the Japan Sea and the Inland Sea, and (3) the defense of the many bays and harbors of the main islands of Japan, the Japanese Naval General Staff lay great importance upon the use of mines.

During July, 1927, the mine layers *Katsuriki* and *Kurokami* mined the entrances to the Inland Sea in the Bungo and Naruto Straits. The mine layer *Tokiwa* had mined the entrances to Sasebo and Saiki Bay just before the accident on board that vessel August 1, 1927. From July 12 to August 1, 1927, the mine layers *Kurozaki* and *Ashizaki* carried out a series of mining and sweeping exercises around Hokkaido, operating from Ominato. They visited successively the bays and roadsteads at Muroran, Kushiro, Atsugeshi, Nemuro, Abashiri, Soya, Wakanai, Mashige, Otaru, Iwanai, and Esashi. They have since operated in the Straits of Tsugaru and Soya (La Perouse).

B. AERONAUTICAL

1. Local maneuvers—September 18, 1927.

Mission.—Stimulate air attack by offshore aircraft carriers, on Yokohama and Tokyo.

Forces at sea.—Planes from *Akagi* and *Hosho.*

Forces from ashore.—Planes from Kasumigaura and Oppama.

Operations.—The combined first and second main fleets were proceeding toward Yokosuka from Tsugaru Straits, in the final stages of a cruise through the Sea of Japan and down the east coast of the main island. (The new airplane carrier *Akagi* had finished all trials and had joined the fleets in the middle of this cruise.)

Starting at 5 a. m. on September 18, while the fleet was at some point off the Province of Awa (southern tip of Boso Peninsula, opposite Yokohama). The *Hosho* and *Akagi* put "all the planes carried" by them into the air as rapidly as possible, which then formed and started the attack on Yokohama and Tokyo. (*Akagi* is said to have launched 40 planes.)

The attacking planes were met at the entrance to Tokyo Bay by "attack, reconnaissance and bombing machines" from Oppama and Kasumigaura in a battle to defend the cities. The operations ended at 7 a. m.

No results were announced.

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2. Loss of dirigible "N–3."

The Japanese dirigible *N–3*, purchased last year from Italy, left Kasumigaura Naval Air Station (about 30 miles northeast of Tokyo) at 8.40 p. m., October 22, on a scouting mission in connection with the grand naval maneuvers. Besides the commanding officer, she carried one officer and five petty officers, a total of seven. Proceeding in the face of a strong southwest wind, the dirigible reached the vicinity of the island of Hachijo about midnight. (This is the site of the new naval air station recently established, 140 miles south of Yokohama.)

Her scouting misson evidently fulfilled, and having reached the point in her fuel consumption which rendered it advisable to return to her base, she turned toward Kasumigaura early on the morning of the 23d.

She now encountered a severe wind from the northeast, which increased from 45 feet at about 8 a. m. to 60 feet a second about noon. It was found in proceeding from Zenizu Island to Kozu Island that the ship was making only 2.3 knots over the water (she was evidently making revolutions for 45 knots into a 40-mile wind about this time).

It became evident to her commanding officer that the ship had not enough fuel to reach Kasumigaura in the face of the storm, and he radioed Yokosuka for weather information and advice. The reply indicated that the storm should subside during the day, upon which the commanding officer decided to remain at Kozu Island until evening and proceed home thereafter.

About this time, however, the ship passed through a series of tremendous squalls. Thunder clouds and pouring rain marked this period, and the ship "was tossed around by treacherous air currents, her rudders became useless, and, finally, hitting one of the air pockets, she suddenly dropped from an altitude of 1,200 feet to 250 feet and was otherwise subjected to all kinds of motions."

The crew was evidently trying to maintain the ship in the vicinity of the island, making only enough speed to remain stationary, and to assist in holding her position they put over a canvas sea anchor designed to hold 3 tons of water.

The sea anchor checked the drift somewhat, but the vessel apparently went completely out of control, due to the force of the storm, and the commanding officer, deciding that the ship could not be saved, turned his energies to saving the crew.

The ship was brought around to be landed on a strip of beach on the island of Kozu, but in approaching it the gondola was repeatedly smashed against the top of the cliffs lining the shore. A small level spot "about 6 feet by 3 feet" was observed on top of the cliff, and all the crew managed to jump out onto it, one man falling over the cliff and injuring himself on the beach below. (In addition to valving the gas, the commanding officer stated that the gas bag was ripped by the knives of the crew to accelerate the descent of the vessel.)

The dirigible now blew momentarily out to seaward, dragging her sea anchor, but, being caught by another gust of wind, was thrown back on a projecting headland some 40 or 50 yards farther down the beach. She dragged about over the beach and the face of the cliff for a moment or two, tearing her gas bag still farther, and then exploded and burned, leaving only the wreckage of the engines and frames.

Her destruction took place about 1 p. m. of the 23d.

The coast of Japan was the scene of a severe storm during the time this dirigible was at sea; trans-Pacific steamers were delayed two full days in reaching Yokohama, logging winds from force 8 to 10, and during one watch on the *President Jefferson* logging force 12. Two destroyers and a hydroplane were despatched from Yokosuka to aid the airship. The destroyers were forced to abandon their mission and return to port. The hydroplane arrived at the scene of the accident, but was unable to be of any assistance.

The *N–3* had a registered speed of 75 miles per hour, and fuel capacity for 44 hours. When she left Kasumigaura she had fuel only for 20 hours aboard, and was abandoned 15 hours after her departure.

NOTE.—The "N–3" was a sister ship of the "Norge" of Arctic fame. She was built in Italy last year and went to Japan, knocked down, only this year. She was assembled in Japan by General Nobile, of Italy, her designer and the designer of the "Norge." The "N–3" was a semirigid ship, and her destruction leaves Japan without any airships other than nonrigid craft.—ED.

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3. New air station and flying field.

A Navy aviation station will be opened on Hachijojima, September 29, 1927. (This is situated about 140 miles directly south of Yokohama.)

No details of the base are published in the press. However, "two fighting planes and one F–5" are to fly there from Yokosuka for the opening ceremonies from which it is supposed that it is a land as well as a seaplane base. Also it is announced that "the flying ground is situated on the northern portion of the island, at the foot of Mount Hachijo-Fuji." "Seventy planes are to be stationed here." (Whether land or seaplanes, not specified.)

Press reports also state that the Navy is negotiating for the purchase of a new flying field, to be operated as a branch of the Kasumigaura Naval Air Station, at Wakamatsu, county of Kashima, Ibaragi Prefecture.

The new field under consideration is about 29 miles southeast of Kasumigaura and comprises 14 acres. It will be used jointly by the Kasumigaura Air Station and the Naval Technical Research Laboratory.

NETHERLANDS

A. NAVAL

1. Activities of the East Indian fleet.

The Netherland fleet in Netherland Indian waters finished its annual maneuvers on October 8, 1927.

It was learned that the problem undertaken in the maneuvers was one of scouting in connection with a raid of a hostile fleet from the north (China Sea) on the Surabaya naval base. No report of the operations will be made public.

The actual work of the maneuvers was hampered by the loss for a day or two of a seaplane which certain ships had to be despatched to find. It was discovered undamaged with the crew safe.

From remarks made, it is gathered that the Dutch naval policy in Netherland India is based on the possibility of a rapproachment between the Japanese and Chinese after a crystallization of the situation in China with European influence in that country greatly reduced or largely eliminated.

"We call them the 'Blue' and the 'Red' fleets," the Admiral said. "We might better call them the 'White' and the 'Black' ones."

NOTE.—As has often been mentioned in this "Bulletin," it has, since the war, been the policy of the Netherlands Government to concentrate the best units in their navy in their East Indian Squadron. Accordingly, this squadron is composed almost entirely of modern and efficient submarines, destroyers, light cruisers, and aircraft. The rôle of this squadron is essentially defensive and as such it would probably give an excellent account of itself.—ED.

SPAIN

A. NAVAL

1. Reorganization of the naval forces afloat.

A royal decree was signed by the King on October 20 reorganizing the naval forces. The preamble of this decree states that on account of the campaign in Morocco the navy had to cooperate intensely in the operations and therefore its principal mission which is to maintain its personnel and material in a state of efficiency for naval combat was neglected. To correct this deficiency, now that the war in Morocco has been completed, the following organization is prescribed:

The fleet will be organized into:

a. A naval squadron under command of a rear admiral, consisting of the battleship *Jaime I*, *Alfonso XIII*, and the light cruisers *Principe Alfonso* and *Almirante Cervera* (the latter about to be placed in commission).

b. A light cruiser division commanded by a "contra almirante" (rear admiral, lower half) who will be subordinate to the rear admiral commanding the Squadron. It will consist of the cruisers *Victoria Eugenia*, *Blas de Lezo*, and *Mandez Bunes.*

c. A destroyer flotilla consisting of the *Aleedo*, *Velasco*, and *Lazaga* and also three destroyers *Sanchez Barcaiztegui* type (1,650 tons) as soon as they be completed and delivered to the navy. These ships will be commanded by a captain also subordinate to the rear admiral commanding the fleet.

These naval forces will assemble to perform combined maneuvers during three months each year. The command of the fleet will then be assumed by a vice admiral appointed by the government.

A flotilla of at least four torpedo boats and four submarines and the airplane carrier *Dedalo* will be attached to the fleet during the naval exercises.

The naval exercises will be held alternately in different places of the Spanish littoral with the support of the naval bases Ferrol-Vigo, Carraca, and Cartagana-Mahon.

During the time not reserved for naval maneuvers, the squadron, light cruisers division, and destroyer flotilla will be stationed, either together or separately, at the more convenient naval bases. During this time intense training will be given in land exercises such as landing and handling of submarine and antisubmarine defenses. Cooperation with the army will be carried out in conferences with specially trained officers of both branches.

The Minister of Marine is authorized to introduce the necessary changes in the tables of organization in order to conform with the

above organization, provided that they be not exceeded. He is also authorized to include in the budget the funds required for the carrying out of the maneuvers and exercises.

Naval forces in Morocco.—The royal decree of March 22, 1924, creating the post of naval commander of the forces of Africa is derogated.

The naval forces in northern Africa will be formed by the following ships:

Cruiser *Extremadura.*
1 gunboat *Lauria* type.
4 "k" lighters.
6 cutters *Uad* type.
1 tug *Gaditano* type.
1 tanker.

These naval forces will be in all military matters under orders of the "Principal Naval Interventor" in Morocco, and in connection with administrative or jurisdictional matters will be under the captain general of the Cadiz department. The forces will be at the disposition of the high commissioner in Morocco through the "Principal Naval Interventor," who will be a naval captain or commander and will be stationed at Tetuan. The Naval Interventor of Rio Martin, who will also be stationed at Tetuan, will be naval commander for the cities of Ceuta and Melilla, and there will be three naval interventors for Larache, Rio Martin, and Alhucemas, all under direct orders of the "Principal Naval Interventor."

NOTE.—The naval policy of Spain since the war, and especially since the advent of the dictatorship of Primo de Rivera, has been positive and has envisaged a rebirth of the Spanish Navy in keeping with her increased political activity and her importance in the western Mediterranean. So far, this policy has not been carried to such an extent as to awaken hostility, but French suspicions are apparently and occasionally aroused in some quarters. Since the war Spain has laid down or completed 8 cruisers—3 of 10,000 tons; 6 leaders; 3 destroyers, 12 submarines.—ED.

SPECIAL ARTICLES

I. INTERVIEW WITH THE FORMER PRIME MINISTER OF POLAND

Source, Copenhagen press

There follows the report of an interview with Count Alexander Skrzynski, former Prime Minister and Foreign Minister of Poland. See the note at end of article for an estimation of the significance of the Count's interesting remarks

The diplomatic training of the young Count was received in the service of the Austro-Hungarian diplomacy, and he was designated for an important post when the World War broke out. Later he became the new Poland's minister in Bucharest, where he soon gained much influence and contributed greatly to a rapprochement between Poland and Rumania.

Skrzynski, as Polish Prime Minister, realized the political and economic necessity of obtaining credit abroad. His work as statesman was based on this. Because he always looked beyond boundaries, he was able to gain the support of the great majority of Polish parties for himself and later for the Locarno policy.

As statesman and as speaker his strongest point is his broad views. This helps him over the difficulties of the moment. He sees the trend where others seize upon the detail, time where others do not get beyond the moment. But his imagination, which plays with problems of the future and his faith, which does not recognize coolness, often causes him to refuse the hour and the day what is its due. In the course of my conversations in Poznan (Polish for Posen) with the leaders of the National Democrats, Dnowski and Seyda, I had been able to discover much ill will against the former Prime Minister, who was reproached of naïvety and pacifism and of allowing his policy to be dictated rather by abstract ideas than by tangible interests.

"Any Polish foreign policy," Count Skrzynski replies to me, "must be pacifistic in so far as it must aspire to guarantees for a long period of peace; the consideration for the internal rehabilitation alone must necessitate this. The means to this end must be personal contact with the statesmen of foreign countries and the elaboration of a whole system of separate treaties and regional pacts."

"*In your address at the University of Krakow you have raised the demand for a new spirit in European politics.*"

"Yes; the commandment of the time is, 'Back to Locarno.' The opposite would lead to a serious threat against peace in our part of the world.

"It is no longer any secret that Lloyd George and Clemmenceau have made a poor peace treaty. It is these men who through their insufficient comprehension of political reality have necessitated the Locarno pact. The Versailles treaty was an instrument of punishment, while the Locarno pact is an instrument of cooperation. The Locarno pact is the first true peace treaty. Locarno is the moral Versailles where it is no longer a question of punishing a whole people but a question of working together for the weal of all. The Locarno pact changes in a quite decisive manner the spirit of the Versailles treaty, but it retains all of the latter's provisions. In Locarno the victors offered the vanquished their hands in order to wipe out the traces of the war and make impossible a new war. Moreover, Locarno is by no means a one-sided advantage for Germany. The fact alone that the Versailles treaty has been recognized in all quarters as the very basis of the reorganization of European politics is of the utmost importance to the victorious powers."

"*Was Locarno a regrettable necessity to Poland or was it a happy event?*"

"Poland had a very real interest in Locarno. If Locarno had not come but the Ruhr dispute instead had been continued, this would inevitably have lead to a rapprochement between England and Germany which would have been fatal not to say disastrous for France and Poland. In the first place Locarno brought England and France together again and thereby created for Poland an advantageous international position. In the second place Germany has by entering the League of Nations recognized all Polish boundaries."

"*But your opponents declare that the Locarno treaty has created two kinds of boundaries in Europe: Namely, the specially guaranteed and the ordinary borders.*"

"This is true to some extent, but there is this about it, that such a difference existed already in accordance with the Versailles treaty signed by the great leader of the National Democrats, Roman Dmowski. In order to induce France to relinquish the Rhine border Wilson and Lloyd George promised a British-American guarantee for the Rhine border, but not for the Polish border. Instead of this there now exists a British-Italian Rhine guarantee. But in the same way our borders are the subject of special guarantee through our alliances with powers interested in these regions, viz, with France

and Rumania. In short, there exists in addition to the general guarantee for the integrity of the member states provided by the League of Nations a system of special guarantees through pacts and treaties."

"*Do you believe in a Locarno of the East?*"

"I can really only reply that we Poles naturally are willing to sign. But while Germany had a great interest in a western Locarno, which secured it against a renewed Ruhr invasion and at the same time secured it a seat in the Council of the League of Nations, I am unable to see Germany's real interest in an eastern Locarno. There is no threat of an occupation of German territory on the part of Poland; no one in Germany believes that Poland entertains secret plans of war. But then we have nothing to offer Germany in return for its signature to an east Locarno pact.

"Poland is vitally interested in the general Locarno policy's development, but this obtains for all countries, as our part of the world could not survive a new war. The Locarno policy is therefore the true 'realpolitik' and by no means an illusionary policy. I have already mentioned the advantages to Germany; in France it has secured the Rhine guarantee and the reparations payments. There are still great obstacles to the consistent execution of the Locarno policy; this is evidenced by, among other things, Poincaré's recent Luneville speech; but I believe that the idea of Locarno, in spite of everything, will prove victorious because of its own vitality."

"*France's eventual right to come to the aid of Poland in case of an unprovoked attack over German territory has been strongly disputed.*"

"Germany could not deny the right of transit march. It would, however, be a peculiar idea for French soldiers in French uniforms to march through Berlin. It is possible that France would prefer to transport troops by the sea route and only transport munition through German territory.

"In case of a German attack on Poland, France would have the right, in accordance with the Locarno pact, to march into the neutral zone. In case of a Russian attack on Poland, France would have the right, in accordance with the statutes of the League of Nations, to come to our aid. It must be regarded as impossible for Germany to deny this right of transit march; this would be to declare itself for Russia and against the League of Nations."

"*What is your opinion of the relation between Poland and Germany?*"

"Amicable relations are a necessity to both countries. We are willing to negotiate loyally with the German Government regarding any dispute, but only on condition that both countries loyally and without reserve accept the principles of international law in this

connection. There is no reason to conceal this, in the opinion of Poland. Germany's relations to Russia constitute the greatest obstacle. Poland does not feel quite sure that there is no double dealing. Tchicherin's (Soviet Foreign Minister) visits in Berlin are often surrounded by a quite particularly intimate atmosphere. This causes us to feel uncertainty; we do not feel sure that we know all the treaties.

"Germany has of late opened an economic war on us with a war tariff, etc. I wish to declare that it would be a mistake on the part of Poland to follow suit. We ought not to forget that it is we who are the victors and the Germans who are the vanquished. The war has brought us advantages, while it has caused them only losses. We ought, therefore, to be long-suffering and patient. There are, unfortunately, various signs that our Government will take up the economic war with Germany, but to the Polish war tariff Germany would reply with further increases in duties; it would prove a screw without end.

"It is of the utmost importance that a Polish-German commercial treaty be concluded. A list should, however, first be prepared of the viable Polish industries; only for them can we obtain and ought we endeavor to obtain tariff protection.

"Much patience and much courage will be required in order to bring about a good Polish-German relationship, but difficulties exist only to be overcome."

"*Your Krakow speech has been construed as an indication that you are preparing your 'rentrée' into Polish politics?*"

After a short silence Skrzynsky replies:

"I am not an active politician, but it was no longer possible for me to look on quietly while the nationalistic ranting on both sides of the border stifled the voice of common sense." Melancholy and bitter the Polish Locarnist leader added: "It is a thankless task to fight against blind nationalism. It is always easier to practice demagogy than real politics."

"*Much has been said as to the possibility of an alliance between Poland and the Little Entente. What is your opinion?*"

"An alliance between Poland and the Little Entente is impossible for historical reasons alone. The Little Entente was established with front against Hungary and partly also Austria. We have, however, no interest in this direction; only an 'Anschluss' would also affect our interests. On the other hand, our relations to the individual States of this group of powers are the best possible. As Prime Minister I did my part to improve the relations between Poland and

Czechoslovakia; now they are exceedingly cordial. Our relations with Yugoslavia are also excellent."

"*How are the relations with Russia?*"

"We desire good relations with Russia also. Much could be done in the economic field. With reference to political relations, it is necessary to take into consideration our politico-geographical situation. During my negotiations with Tchicherin I always emphasized to him that Poland would be willing to conclude a nonaggression treaty with Russia, but only provided the same treaty or pact comprised all the Baltic States and Rumania. We have moral obligations toward the small Baltic States which attained national independence simultaneously with Poland, and we can not forget those obligations.

"It is not likely that Poland would look on quietly in case of an attack on Latvia or Estonia. I presume that Poland in case of such an attack would be accorded a mandate by the League of Nations. As regards the individual Baltic States, Finland has shown clearly that it does not wish to be reckoned as a Baltic State. Our relations with Estonia are very cordial. Latvia, however, has moved away from Poland through the Zeelen treaty, which marks a rapprochement with Russia. I regret this very much. Lithuania pursues a policy as if it desired perpetual war. It is to be hoped that there may come a change.

"When, in spite of the intimate relations, a military alliance, for instance, has not been concluded between Poland and Estonia, this is due in the first place to the great difference in strength. It would at once be asserted that Poland aims at a sort of supremacy."

It may by no means be assumed that Count Skrzynsky's political rôle is at an end. Sooner or later he will again conduct Poland's foreign policy from the Brühl Palace. Since his retirement on the formation of the Witos Cabinet he has only once, in his Krakow address, spoken publicly. When he now discusses the foreign policies of his country, this seems to indicate a wish to again play an active rôle.

NOTE.—The above interview is of interest and importance in view of the present international position of Poland. It might seem to be a far cry from Poland to the United States Navy, but Poland furnishes to us a good example of the interdependence of States in maintaining peace and the accumulative effect of political concussions throughout the world.

Poland is one of the keys of peace in Europe. She is bound by alliance treaties to France and to Rumania, who, in turn, are bound to Czechoslovakia and Yugoslavia. This network is the defense

which France has set up for the isolation of the Soviet, for the encirclement of Germany, and for the separation of Germany and Austria. Poland is interested vitally and directly in the first two of these motives, and to a somewhat less extent in the third of them.

Poland is at Russia's doorstep into Europe and hence, in a military sense, she is the first line of defense against any onslaught into Europe of the Soviet horde. For this reason, she was supported by France in her war with Russia in 1290. She is also the strongest link in the "cordon sanitaire" which the Allies created around Russia during the revolution. Hence, since Soviet Russia is the greatest menace in Europe and the world to-day, Poland plays a very important part in the relations of the rest of the world with that country. For some time Poland and Russia have been dickering over a nonagression pact, such as Russia has with Turkey, Persia, Lithuania, etc., but little has tangibly resulted from this. In the meantime Poland's relations with Russia might be said to be generally in the same condition as those of every nation which has recognized the soviet régime, namely, uncertain and, by nature, merely temporarily expedient.

Poland's relations with Russia are also of essential interest to the peace of Europe because of the avowed intent of Germany never to rest until her eastern frontier and the Danzig Corridor questions are settled. By coming into the League, Germany has bound herself to settle these questions by peaceful means, but they are nevertheless unsettled at present. Poland's relations to Germany are defined by the Versailles and the Locarno treaties. Under the former, the Polish-German boundaries were run and the Danzig Corridor established, separating East and West Prussia. Under the latter, the permanence of these boundaries was guaranteed by France, as far as warlike efforts to change them are concerned, but it will be remembered that Great Britain refused to join with France in this guarantee. The close moral, political, and economic relation between Germany and Soviet Russia places Poland in a vise which, without the French alliance and the Locarno guarantees, would make her fear for her existence.

At the present time Poland has lately sprung into the war-scare headlines of the world because of her relations with Lithuania. Both of these States are products of Versailles and both were created in whole or in part out of the former Russian Empire. Lithuania, to the north, is so situated that she can, if she desires, block Poland's exit to the sea by the Neimen River route, which would work great hardship on Poland because of the latter's extensive logging industry.

In 1920 Poland by a sudden coup seized Vilna in Lithuania, giving as her reason that this town was essentially Polish. From that time to December 10 last, Poland and Lithuania have been in a technical

state of war. The matter was referred to the Council of Ambassadors, who upheld Poland's claim, but this decision has never been accepted by Lithuania. Poland in the meanwhile has drawn close to Latvia and Estonia, Lithuania's northern neighbors, thus isolating the latter, who, in her turn, has concluded close relations with Soviet Russia. The northeastern European situation exists in this unfortunate, suspicious, and volatile position to-day and it can not be denied that the Polish-Lithuanian boundary marks one of the contemporary danger spots of the world.

The existing animosity in this area came in for one of its periodical flare-ups the first part of December last. Lithuania accused Poland of endeavoring to foment revolution; the latter denied the charges and accused Lithuania of mobilizing. Charges and countercharges flew thickly. Germany and Soviet Russia felt that Poland was attempting to simply swallow up Lithuania and in these circumstances the Soviet Government addressed a note to Poland to the effect that she simply would not tolerate any war and especially any aggrandizement on Poland's part. Poland and Lithuania then decided separately to refer the matter to the December session of the League Council.

The Council sessions were attended by Pilsudski, who is at present the virtual dictator of Poland, and by Waldemaras, the Prime Minister of Lithuania. They were, apparently, unexpectedly successful, for the Council, with the approval of these officials, unanimously adopted a resolution on December 10 declaring the state of war ended. In addition, the resolution provides that in the case of future threats to peace the League may take steps to bring about a settlement. The resolution, however, leaves open and unsettled the outstanding questions between the two countries, so that undue optimism in regard to peace might be premature. This success of the League is considered as a great victory for that body and it adds additional laurels to Mr. Briand, the French Foreign Minister, who, of course, in view of the treaty relations between France and Poland, was particularly anxious for peace and stability in northeastern Europe.

The significance of all of this is simply to indicate how, as was said in the beginning, the world politically is a small place, that peace in the remote corners of Europe is of interest to all the world, and how not only do many petty disagreements magnify themselves occasionally into war but how the political actions of one small European State are so apt to upset the delicate balance in which Europe is suspended.—ED.

II. POLITICAL AND SOCIAL SITUATION IN MEXICO

The following estimate of the Mexican political and social situation was recently written by a Latin American (non-Mexican) official who has spent some time in Mexico. The fact that the author is himself a Latin American gives the article special significance.

a. Situation, social and cultural.

At the present time it can be said that a very low level has been reached by the Mexican people, socially and culturally, in the group of Latin American countries. It probably has worthy and noble tendencies, although I believe such tendencies are latent, suppressed, because of the long moral crisis existing to-day, but by its devotion to letters and arts, and certain glorious traditions of this people have left the trace of outstanding personalities representative of a superior race and culture. Otherwise, the maintenance of the Mexican nationality would tend to a retrogression toward barbarity, menacing total elimination of humane interests.

Unfortunately, their better qualities have not been exploited in harmony with the civilization and progress to which cultivated people aspire, but have lain dormant, and a sentiment of criminality, involving all and dominating all, has been exalted, at the expense of natural inclinations.

Therefore it is not the exaltation of valor as a virtue, as an attribute of nobility, as an exponent of racial virility; no, it is the criminal cruelty, cruel treason, perfidy—this is the school in which the social culture of this people now thrives and develops.

Despicable political leadership has propagated, in a general way, this moral sickness, for the present gravity of which the so-called "Mexican militarism" is responsible—"Mexican militarism," which is nothing more than despotic leadership with the ostentation of militarism, and which is only a blurred form, the result of improvisation and pretorianism.

Under these conditions, the uniformed and titled army chiefs control lives and haciendas. Over all spreads the appalling multitude of generals of division—over all institutions and authorities—and for these despots there is no law other than the pistol or the sword, assassination, kidnapping, and bribery.

The bloody record of Mexico probably comprises the sum of the criminality of all the other Latin American countries, and this criminality is stimulated by the most flagrant impunity, thanks to the sublime rights of "personal defense," protected by juries of illiterates and pardoned criminals; when it is not treacherously and cruelly repressed by the application of the "ley de fuga."

The crimes are committed by all; by the representatives of justice, by the immune military authorities and influential politicians, by

the people called cultured, and by the plebians (pelados). The important thing is to kill as quickly as possible the present or future adversary with the greatest show of passion, in order that the just law of "self-defense" may be invoked.

Under this sad training of perversity the Mexican people live and have lived with more or less intermittance. It is the lesson repeated by all its authorities, from the highest to the most humble. And the sad part of it all is that nothing is done to remedy such a state of affairs. Everybody carries, publicly and openly, his famous revolver, "Squadron .45 Regulation," and it is fired whenever prompted by instinct—whether against known adversaries or against unknown persons, whenever impelled by a state of rage, provoked generally by abundant libations of champagne, tequila, or pulque, if not through the insanity caused by the use of the terrible herb called "marihuana." Shooting affairs and rowdy quarrels have a preferred space in the daily papers.

It is well known that only after a number of years of the long and beneficial dictatorship of Gen. Don Porfirio Diaz (lasting 33 years) could the country be moralized, and a very advanced degree of progress resulted, which, had it not been interrupted, would have undoubtedly placed Mexico as one of the most important nations of the American continent. In fact, this is borne out to-day by the material manifestations of such progress which still exist and which are in reality all that remain. But in the 15 years intervening, the revolution, which overthrew General Diaz, under the pompous motto or slogan, "Effective Suffrage. No Reelection," opened the dykes to the stream of immorality and barbarism which afflict the country to-day.

The natural resources of the country, its inexhaustible sources of exploitation, its proximity to the United States, and its enviable geographical situation tremendously favor a marvelous vitality. Its economic potentiality is so great that the serious effects of its political blunders are not even able to ruin its unlimited material wealth, although they do great harm to its moral structure and bring bitter suffering.

The present financial situation is not very encouraging. The policy adopted against the North Americans and foreigners generally, has resulted in a serious diminishing of national revenues, as many oil companies (the principal source of wealth) have begun to reduce their operations, others have closed out altogether, and many have refused to invest their capital in this country and are operating in Venezuela and Colombia instead.

Commerce in general is suffering a decided crisis, and great lack of confidence prevails concerning the possible outcome of the forthcoming elections.

Foreign capitalists are endeavoring to sell their properties for fear they will be seized. Many can not find buyers; others sell at absurdly low prices.

In spite of all these grave symptoms the Government has abundant financial resources available to such extent that it operates successfully in the exchange market, having recently obtained a favorable advance for silver money which had depreciated.

Living is high, especially for the foreigner, but, nevertheless, luxury and diversions prevail as the normal scale of living, and there are a great many wealthy people, including many multimillionaires.

However, as no people can live long on a fictitious basis, there are many indications, plainly apparent, of the true social and economic condition; terrifying figures as to street beggars, horrible scenes of abject misery, increasing emigration out of the country, innumerable suicides of both men and women as an escape from misery, and, lastly, the enormous number of insane victims of direst poverty.

Under such unfavorable conditions, moral and social, there can be no talk of culture or social improvement. Prostitution prevails, and vice is stimulated. While the most fantastic luxury is displayed by certain classes, yet there abound beggars, the wretchedly poor, and unemployed; and many of the latter perish from hunger, or they suicide—having no means to obtain the barest necessities of life, which are constantly growing dearer. Yet the generals and the outstanding men in public life are spending thousands of dollars daily, own several expensive automobiles, lordly mansions, and valuable properties.

b. Domestic policy and the religious conflict.

As I have already said, the domestic policy is intimately linked to this historic question, which to-day afflicts the Mexican nationality; it, therefore, generates this atmosphere of anarchy which destroys the best energies of the nationality.

The triumphant revolution of 1911, headed by a dreamer, an incapable and improvised politician—sprung from intrigue and nurtured by successive treacheries, from its commencement to the present time, gave as its first fruits the ousting and assassination of its progenitor, Don Francisco I Madero, as the first victim of his own handiwork; and the presidential succession fell into the hands of the militarism improvised by that revolution. From this militarism were born the most advanced socialistic ideas; hatred against the United States was fostered; the most false and petulant nationalistic ideas have been inculcated.

Now, that in order to carry forward these ideals, the methods have been inappropriate in form, in principle, and in means, sufficiently explains the failure of the revolutionaries, and the unstable

conditions which have brought with them interference with the progressive advance of the nation.

It is very easy to promise, in the political programs, to settle social and patriotic matters (which arguments the people applaud and which are echoed by the followers) to further the ambitions of the candidates; but in reality the solution of these problems is complicated and difficult—because they can only be abandoned in the certainty of failure, or undertaken without considering the serious consequences to the country.

Mexican socialism is, then, an utopian ideal, but disastrous in reality. And the greatest advantages that can be claimed, as having been obtained, are agrarianism and laborism, but in such an arbitrary and fictitious form that they only engender defeat and anarchy.

Agrarianism has only served to deprive of their properties, political enemies of the present régime, and some foreigners, especially Spaniards, without any remuneration whatever, in order to distribute these holdings among friends of the Government, or popular groups—in almost all cases incapable of engaging in agriculture, thereby causing serious loss to the agricultural wealth of the country and forcing foreign capital to emigrate.

The confiscation (or usurpation, rather), likewise, of city properties of political adversaries and of religious communities, in order to use them as public buildings—when they do not pass into private hands—is another of the social conquests which characterize the revolutionary régime now in power.

Labor legislation has its special arbitrary and utopian seal, and suffers not a few deficiencies which render it far inferior to that of other countries which do not claim to have reached the highest degree of socialistic perfection. The labor activities are directed and controlled by the department of industry, commerce, and labor, the secretary of which is at present also functioning as president of the "Confederación Regional Obrera Mexicana" (C. R. O. M.), and was the socialist leader of the revolution. The C. R. O. M. exercises an official "personería" (solicitorship), and an autonomy, independent of the public powers, in the administration and solution of all labor questions—yielding to or rejecting the action of the Government—whichever best serves the mission of the double personality of cabinet officer and labor chief. Therefore this labor organization fails to function efficiently, and is conducted with the sole object of securing enormous benefits for its leaders (politicians of the present régime) through acts of political speculation, rather than social defense.

The "Crom" (as it is commonly called by the public), is, then, directed by a titled Bolshevik Socialist, Don Luis N. Morones, who is at the same time Secretary of Industry, Commerce, and Labor, and

therefore part and parcel of the present political fabric; and both he and his group have scandalously enriched themselves thereby, and represent a political power, rather than social.

Social conflicts are settled by the "Crom" according to the influence, cleverness, and money of the capitalists; and, before its closed fist, those who can not or will not conform are only allowed to breathe.

The laborers—what can they be where there are no guarantees to life or home, where the illiteracy is so great, in spite of not having the problem of another language, and notwithstanding the immense sums of money spent and wasted, and the valuable properties seized and dedicated to public instruction. Notwithstanding all this, only in the capital and a few other of the large cities can a definite degree of progress be observed.

Socialism should not be the product of an improvisation but the flowering of cultural perfection within the bounds of order, of general progress, and of social justice. But such ideas are not understood by peoples socially disorganized, backward, reactionary, or anarchistic, in which liberty is only confused with abuse and justice with tyranny.

Returning to the concrete point of the internal policy: Military generalship is the grade immediately prior to arriving at the Presidency of the Republic; and, as the number of citizens holding this title is so great, and the merits to obtain the title are not of a professional but political order, and secured through irregular procedure—it is easy to explain the number of aspirants to the Presidency and the serious conflicts which these ambitions engender.

Election activities have already begun and Generals Alvaro Obregón, Arnulfo Gómez, and Luis Serrano figure among the candidates. The first was the president which the present incumbent, General Calles, succeeded; and although he is supported by the official favor, his candidacy is strongly opposed, as it violates the precept of the present opposition—"No reelection." General Gomez was, until recently, chief of military operations of the State of Vera Cruz (commanding general of a region). General Serrano has just vacated the governorship of the Federal district of Mexico.

Generals Gómez and Serrano have raised the banner of "No reelection" and have recently united their forces against Obregón. Prior to this there was an antireelectionst assembly, in which the candidacy was also announced of Gen. Joaquin Amaro, present Secretary of War and Navy, but it seems that he met with no success, owing to his humble personal antecedents, however much he may be a correct functionary. In the same assembly an insinuation was made to present the candidacy of an antimilitarist, the candidate being the famous

Vasconcelos, but, as would be expected, he was unsuccessful and obtained only the pitiful number of 5 votes, while the generals obtained several thousands.

NOTE.—Generals Gómez and Serrano were recently executed. See the November "Bulletin."—ED.

The electoral campaign carries all the characteristics of violence and bloodshed, due to the attitude assumed by the candidates, which makes it difficult to predict to what extremes it will be pursued. There is still a year ahead before the presidents change, and the political fight is already violent and dark. Many generals and other officers have requested temporary separation from the military service in order to take part in the electoral fight beside their respective chiefs, and these have already been rudely attacked by the press, which imputes to them electoral crimes, robberies, and outrages, to end by assassinating each other, or heading armed groups to dispute the political victory.

The people apparently take no interest in the preliminaries of the electoral fight, which can in no way benefit the sad condition of oppressed and muzzled Socialists—a suffering people, believers, cruelly exploited and brutalized by alcohol and marihuana—victims of the reigning militarism, which imposes itself by assassination and religious persecution. It is, in my modest opinion, the most serious problem which has arisen in these tragic moments of Mexican life.

The present Government is pushing its rigorous measures to strangle the religious sentiment which is almost universal in the country. Aside from the expulsions and persecutions of the religious leaders and the confiscation of their properties, they pursue, jail, deport, and shoot, without regard to class or sex, all who persist in their Catholic faith. The Young Men's Christian Association counts to date over 60 victims, young men from prominent Mexican families, a list of whom is circulated among Catholics with a description of the horrifying scenes of martyrdom and amazing deeds of valor amid which the defenseless martyrs of Christendom gave up their lives.

The Catholic elements certainly conspire, and, in spite of the terrible blows which they have suffered from the police or from Government troops, they continue in their purpose and even appear to be confident of a conservative reaction, sooner or later.

The latest declarations of General Gómez, censuring the methods of religious persecution, have given the Catholics their first triumph, as over 250 persons have been given their liberty among those arrested and deported to the Islas Marias Penal Colony.

This phase of the political situation in Mexico is, then, the most serious and does most to complicate the aspects of the electoral cam-

paign just begun: but at the same time it seems to me the easiest of solution, provided the Government will modify, by degrees, its odious policy of persecution, and the political leaders offer guaranties equal to those declared by General Gómez.

c. International policy and Mexican nationalism.

It seems that each topic analyzed makes deeper the grave mistakes and instability of Mexican national life. A complete disregard of national advantages, a hypocritical and pedantic exploitation of a chauvinistic nationalism, synthesizes the policy which Mexico observes in her international relations. At the present time the Government concedes to no country a greater importance than can be derived from its material power and this under very singular conditions of appreciation.

It would take too long to refer to the numberless data which have formed my opinion in this respect: and as this is intended only as a brief article upon the most important points, it is enough to say that the term "foreigner" is sufficient to invite indifference, when not speculation, disapproval, or antipathy. We have very slight chance of escaping the latter form of appreciation, for many reasons, which will be seen later. True it is, that as a general rule the foreigner is detested here. Yet the only manifestations of progress which can be noted have been brought here by the numerous colonies—Spanish, American, French, German, etc. Nevertheless, as Mexican nationalism is not absolute, as is nothing in life, a classification can be made as to the appreciation accorded the different countries, and which, more or less, may be expressed as follows:

The countries most highly regarded: Germany, Chile, and Russia. Hated: The United States, France, and Spain. Envied: Brazil, Argentina, and Cuba. Flattered, under certain circumstances: Japan and England. All the others are disdained from the height of Mexican petulant nationalism.

The nationalist idea tends to become more deeply rooted in the universal judgment. And its manifestations have appeared in singular forms of exteriorization, such, for example, as the Italian Fascism. But between these rational forms of nationalism and those which have been acquired in Mexico, through its present absurd policy, certainly there is an enormous difference, a complete abyss of separation. In Mexico the concept of nationalism has been inculcated so disproportionately that it has abruptly advanced to the point of petulance, lying, and absurdity. Nothing Mexican, bad or good, is inferior to the best that is foreign, which in the most favorable case can only be compared as equal, never as superior.

A country whose governing group have exploited, and continue to exploit such a doctrine, in a completely incipient and anarchical

medium, can not attain a favorable status as a cultured nation in the concert of other civilized peoples. And this nationalistic idea has come to form an astonishingly ungrateful atmosphere for the foreigner, and what is worse, profoundly fictitious for the Mexican, who looks upon his misery as heroic, his vices as virtues, his perfidy as valor.

In this nationalistic platform there enters, of course, the boasted superiority over the United States; to the extent of believing that, in case of war with that country, they would only be defeated by numbers and greater material resources; and that the North Americans fear Mexico, because on several occasions they have yielded in conflicts which have arisen. It is true that the United States has sometimes shown itself somewhat daunted in the face of the active Mexican propaganda and in many cases has acceded to its demands; but that attitude has not been due to intimidation, because the Mexican question gives it no concern in a military way, but it considers the sacrifice of its extensive commercial interests, and furthermore is concerned not to prejudice its political advantages.

However, almost the only progress that is noted in Mexico at the present time is the fruit of the powerful commercial and political influence of the United States, which country is hated here, but whose tastes, customs, and even language, are invading almost imperceptibly, but definitely, the entire Mexican atmosphere.

The military efficiency of Mexico is truly insignificant; but the attempt is being made to acquire certain political influence as compensation, and for this purpose it is drawing closer its ties with the most important of the Latin American countries. At present embassies are maintained in Brazil, Guatemala, and recently, Cuba. Soon Argentina is to be raised to this rank, and possibly Chile and Colombia.

Supplementary notes.

(1) In order to obtain impunity for assassins it is only necessary to clear and prove, eventually, that the victim was the aggressor and that death resulted from an act of self-defense. When the authorities decide to assassinate prisoners in their custody, it is only necessary to declare that they were shot because they fled.

(2) The ex-Governor of the State of Puebla, Sr. Gen. Manuel P. Montes, committed numberless abuses and frauds, for which reason he was replaced by Gen. Donato Bravo Izquierdo. General Montes was imputed by the local press to be responsible for the assassination of 300 persons during the six months that he acted as governor.

(3) "El Universal Grafico" recently published statistics showing a decrease in the national population of 3,000,000 inhabitants due to criminality, and adds that in the small town of Tacubaya alone, a

suburb of Mexico City, the enormous number of 600 assassinations took place in the course of one year.

(4) The number of Mexican emigrants going to the United States reaches over a million, according to data from the Consul at Los Angeles; and the exodus increases daily.

During the month of May last, 54 suicides were recorded in the city of Mexico alone.

In the central insane asylum, of Castañeda, there are at present over 1,900 inmates, all as a result of indigence and alcoholism.

Another of the ills which afflict this country is leprosy, and there are not yet any special sanitariums. It is officially calculated that there are over 150,000 lepers in Mexico.

(5) The most important foreign colonies, by their capitals, are the American, French, Spanish, and German; and as to population they rank in the following order: Spanish, American, French, and German.

(6) The public are deceived with petulant mottos, which are published in the daily newspapers, or commercial advertisements, such as: "En toros somos los únicos. En deportes los primeros" (As to bulls, we are the only people; in sports, the first). "Igual a lo Europa, mejor que lo Americano" (Equal to European, better than American); and such like.

(7) The following Latin-American countries are without any diplomatic representation here whatever: Bolivia, Ecuador, Salvador, Costa Rica, Haiti, Honduras, Nicaragua, Paraguay, and the Dominican Republic—their archives being in the custody of the consuls. And as to Venezuela, diplomatic and consular relations between the two countries have been broken off, mainly due to the intemperancies of Mexico, among which figured prominently the matter of the famous bolshevik theorist, José Vasconcelos; and now the competition in Venezuelan petroleum is increasing the enmity for the great country of Bolivar.

NOTE.—Within the last few months, Mr. Dwight Morrow has been appointed our Ambassador to Mexico. It is a matter of satisfaction, as well as interest, to note that since he has assumed his duties in Mexico City the press of both this country and of Mexico have noted a considerable improvement in the relations between the two countries, and are more optimistic in regard to the future. President Calles, in an Associated Press dispatch of December 6, is credited with saying, "I am happy that he (Mr. Morrow) is the United States Ambassador to Mexico and that improvement in the relations between the two countries is being effected."

As a coincidence, but one probably not without reason or significance, it is to be noted that since Mr. Morrow went to Mexico, the

Supreme Court of that country, in a decision relating to an American oil company, has considerably altered for the better the aspect of the land and mineral question and that Señor Morones, the radical labor leader, has resigned from the Government. The flight of Colonel Lindbergh has been acknowledged by the press of both countries as being of an immense aid in the betterment of relations between the United States and Mexico.—ED.

III. INTERVENTION IN CHINA.

[The following article, stimulative of both thought and speculation, has been written by Maj. Gen. William Crozier, United States Army, retired]

There has been a general tendency in recent accounts and discussions regarding China to go back to the revolution of 1911, when the Empire was overthrown, and to show the failure of the attempts to set up in its place an orderly government which could properly administer the affairs of the state—the failures resulting in disorderly conditions which would perhaps account for the apparently contemptuous official disregard of what the Occident considers the elementary rights of man.

But what has not been dwelt upon is the fact that neither the Chinese nor any other oriental government has ever acknowledged these human rights. The Government of China has always been from the top down, with no accountability on the part of any official to those below him, but only to those above, and in the case of the Emperor, to Heaven only. The administration of the government was, therefore, what it has been everywhere else under similar circumstances, in the interest of those doing the governing and not in that of the governed.

In theory all the land of China belonged in former times to the Emperor, and the theory was reduced to practice whenever in his uncontrolled judgment the occasion called for it. If the proper official considered that a piece of private property was needed for public use it was summarily taken, in the name of the Emperor; though usually, it is true, with some compensation. But this was given only in gratuitous consideration for injured feelings, not in acknowledgement of a right, and it was generally much below the value of the property. The Rev. John Macgowan relates an illuminating incident of a period as late as the introduction of the telegraph into China. An objecting owner placed himself in the hole which had been dug for a pole and declared that he would die rather than let the pole be erected. Of course, he had special reasons for such radical conduct, which were connected with the graves of his

ancestors nearby. But he quickly changed his mind when it was explained to him that the line was being run at the express command of the Emperor, who, he was reminded, had the power to order him and his wife and children "to be seized and to be cut into a thousand pieces, and none would question his right to do so."

But the everyday economic exploitation of the masses was in taxation, as it always is where economic exploitation is arbitrarily practiced, and this was levied and collected under a most pernicious system. The governors of Provinces were required to forward certain fixed sums to the capital, either in money or kind, but no limit was placed upon the amount which they might collect from their Provinces; and as they were given no salaries, but usually had to pay officials or court favorites for their appointments, and moreover, had no permanent security of tenure, they were under not only the necessity for providing for the current expenses of their establishments but also the temptation to secure as promptly and as liberally as possible provision for their own future.

They followed in their Provinces the same system as was practiced with themselves, calling for stated amounts from the district magistrates, who, in turn, collected what they liked or were able to extract from subordinate political divisions. And so it went on down the line to the disreputable body of men who were the taxgatherers, in direct contact with the people. The taxgatherers—like others, without salaries, and also having purchased their positions—had the privilege of getting what they could out of the poor villagers as long as they kept within certain forms of the law.

The land tax, for example, was often not unfairly assessed, but all sorts of ways were found for increasing the amounts collected. One way was to let the time for payment go by without notice, and then to come down on the delinquent with a perfectly outrageous and arbitrarily fixed fine for delay, which the victim would be too ignorant and too terrified to combat. It would be useless to appeal to the mandarin, for his sympathies and those of all the officials of his court were with the taxgatherer.

They were all participants in the extortions. And the experienced observer cited above tells us that by chicanery and deception, by lies unspeakable, and by false accusations that would bring men within the covetous grasp of mandarins, extortions were exacted that would bring misery and wretchedness upon the homes of the poor, which means the large majority of the population. The clothes upon their backs and the little utensils in which their food was cooked would be taken from the country people if they had no other property with which to meet the rapacious demands.

The civil list was a very simple matter. There were practically no charges upon the national treasury for local administration, which

took care of itself in the way described. And another witness tells us—a British consular officer of many years' experience over different parts of the interior—that law and order could be maintained with a small number of troops because the people had no weapons and "the great bulk of the population was kept under, constrained to be content with a bare subsistence as the reward of constant toil, and the rabble was constrained to starve."

This picture of the economic relations of the masses with their officials has its counterpart in the personal relations. Oriental philosophy has produced many fine precepts for the government of the relations of man with his fellow man; but in the Orient the official is not a fellow man. He is a very superior being, who is himself the judge in the matter of any offense committed against him, with no responsibility to those below him. And in judging the offense, too, as well as in other trials of accused persons, he has had time-honored freedom to make as full use as he liked of the bamboo and other forms of torture in order to facilitate proceedings by stimulating the memory or the inventive faculties of the accused. These inflictions, although not punishments adjudged after conviction but mere incidents of the trial, would often tear the flesh of the victims in such manner as to leave them invalids for months.

But the bamboo was not reserved for use in connection with judicial proceedings only. Lord Macartney tells us in the diary of his mission to Peking, in the last part of the eighteenth century, that men were seized without ceremony along the route and made to tow the boats of the mission up the Peiho, and purveyors were directed to furnish provisions and other supplies for their use, with prompt application of the bamboo for any failure of service or supply. He tells us also that when his ships needed native pilots for coming up the coast two men were summarily ordered by the local mandarin to accompany his fleet, in complete disregard of their pleas that they had not been engaged in piloting for years and that their business would be ruined if they were forced suddenly to leave.

The British consul described the prisoners consigned to an old-world gaol, after proceedings of the judicial character indicated, heavily shackled with chains that clanked as they moved, crowding up to the bars, dreadful specters of humanity, for all the world like wild beasts in a cage, some of them vicious by nature, and the rest brutalized by an inhuman penal system. The prisoners were brutes and the gaolers were no better.

Such is the system under which the Chinese people have always lived. But it is not to be inferred that the Chinese officials were a cruel set, inflicting wanton suffering with malice or cynical indifference. They were not. The Chinese are a kindly race, reasonable in

the affairs of life and tolerant of small shortcomings. They have many very human virtues, are famous for the veneration of their parents, their affection for their children, and their devotion to the whole family membership.

But the officials are what their kind all over the world have always been when unrestrained in the control of relations between themselves and their subordinates. They have consulted their own interests and those of the ones close to them and have never hesitated at the exercise of any amount of severity in overriding what we call human rights, both economic and personal. The Chinese people have never had the right to a speedy public trial for offenses charged, have never been secure in their persons, houses, and effects, have never enjoyed the privilege of life, liberty, and the pursuit of happiness, and have been helpless to obtain these blessings for themselves. Sages have enunciated rules for wise and considerate government by the ruler, who evolved from the patriarch, and he from the head of the family; and the Chinese magistrate, exercising locally legislative, executive, and judicial power, has been called the father of his people. But human nature is not proof against license.

In America civil rights have been so long established in routine and accustomed practice that we have forgotten the long travail and the bloody struggles through which they were acquired. There is nothing to keep the process present in our thoughts, and it is only when we consult the history of the western European races that we realize these things have never been handed down from above as a gracious concession of autocracy but have been conquered bit by bit from reluctant authority. From the Magna Charta, wrung by force from King John in 1215, in which was granted freedom from taxation without representation and the right of trial according to law, to the Declaration of Independence, with its comprehensive statement that all just powers of government are derived from the consent of the governed, the successive steps toward government of the people, by the people, and for the people have been painfully won by the force of the people's own power.

This power is in the main the power of numbers in intelligent combination—the most elementary power in the world. Two men can whip one if they have the intelligence and the motive to combine against him. And this is the only kind of power that little people have against concentrated authority, which has no difficulty in organizing and arming to beat them in detail. But the Chinese people have never had the faculty of combination, because they lack the prime essential, the ability to intercommunicate freely, to form public opinion. They also lack the common sentiment inspiring them to concerted action with mass strength.

There is nothing in combined action which is foreign to their capacity, for they have practiced village democracy for centuries, reaching common conclusions upon the matters within the limited competence of the village authorities; and the authorities have acted in responsibility to the governed numbers, looking downward for the approval which could be easily given or withheld. But when the field is wider, and the word of mouth will not carry freely among the members of the body politic, a certain amount of education must come in, so that the written word may supplement the spoken, and an avenue of intelligence be opened to the popular mind through which it may be empowered to effect the union, achieve strength, and may also learn to avoid such use of its power as would involve destruction, instead of promotion, of the people's common interests.

An overwhelming proportion of the Chinese people is illiterate and densely ignorant. The percentage of illiteracy has been variously estimated. There are no statistics. But shortly before the overthrow of the Empire the Chinese Government, in connection with one of its schemes of reform, estimated that after its educational project should be in operation for six years the number of illiterates would be reduced to 99 per cent of the population. This is probably overstated; but being a Chinese governmental estimate, it does not err through motive. Other students of China have placed the illiterates at between 97 and 98½ per cent. At all events it is enormous.

When, therefore, in 1912, certain self-constituted officials proclaimed the Chinese Republic, and the American Government hastened to offer recognition and congratulations on the institution of a system similar to its own—our people, having forgotten how their own free Government had been acquired, failed to realize that the only thing which could be said with certainty of the new government was that it could not possibly operate in accordance with its scheme. For the scheme, of course, vested the ultimate political power in the people, and the Chinese people are utterly incapable of exercising such power.

No one can have a clear title to an office, for the people are incapable of giving it, and any government that is established must be some kind of usurpation. And this is what all the governments have been since the overthrow of the Manchus. The late leader of the Nationalist Party, Dr. Sun Yat-sen, realized this, and placed militarism as the first step in the program by which a real republic is to be established, after which is to follow tutelage of the people, and then democracy. That is to say, there is to be military usurpation of political power from the other militarists who are now exercising it in different sections of the country, after which the new

usurpers are to prepare the people to replace them in the exercise of control, and then they are to give up the power (obtained by fighting) with the profit and importance accompanying it. And the leaders, according to Doctor Sun's program, are to do all this without any compulsion from below, which the people are as yet confessedly unable to exercise. They are to do it because they are a different kind of militarist from those whom they are to replace or from those the world has heretofore produced.

When it is stated thus, in the light of history and of reasoning upon human nature, we can see what chance there is of any early success for the doctor's program. And, indeed, we have already seen some of the results of its operation, in the considerable section of China where the Nationalist forces have secured authority. The old Adam has appeared among the leaders, and personal profit and rivalry for power are repeating the distressing history of the past 16 years.

So we must believe that if China is to be regenerated by her own efforts and her people relieved from exploitation by their native rulers it must be by the educative process, giving power to the governed, who exact accountability from officials, by which alone the task has been accomplished in all other parts of the world where popular liberty prevails. And this will certainly come about eventually, because the spark of education has been lighted in China, and it can never be put out. But as to how long it will take, and as to how much suffering incident to the struggle there will be in the meantime, the experience of our own race is not reassuring. Although China, with the help of our example, can traverse the arduous course in less time than it took us by the method of trial and error, still the spirit wilts in contemplation of the weary generations which must be required for success against installed power, under the handicap of the disturbed conditions which blight the growth of education.

Is there no way of accelerating the process from the outside? And, in conscience, is not that part of the world where the thing has been better worked out called upon to try and help the Chinese people?

We are told by well-meaning persons that the Chinese people have a right to work out their own salvation in their own way and that it would be wrong to interfere in their internal affairs. But who are the Chinese? Are they the 2 per cent who exercise an autocratic and profitable rule over the others? Or are they the inarticulate 95 per cent who have nothing to say in the matter, and never have had? If we have any duty or responsibility in the premises, to which group is it? Or have we any at all? By staying out and keeping our hands off we leave the 2 per cent free to fight among themselves for the control of all the others, and to force as many of the latter into

the mélée as they can arm and equip, while harrying the remainder with the miseries of civil war. The only justification which we admit for making use of our strength is the defense of our own interests, of the lives and property of our nationals. But what idealism is there in this plea when dealing with a weak and backward people? Is the selfish reason the only one to which we will grant any validity?

But we are also told that the task of assuming charge of China, against the united opposition which we would encounter from all the factions which are now fighting each other, would be too big; that the game would not be worth the candle; and that it could not be prosecuted to success in any case, for it would involve endless guerilla warfare with the irreconcilable 400,000,000 of China's hostile population. Let us look at the situation for a moment.

China's armed forces are loosely estimated at some 2,000,000 men, whose sole present occupation is fighting each other or plundering the unarmed people. And this is the limit of her numerical possibility, for the task of armament and supply, particularly of ammunition, is already too much for her warring chiefs, even with the considerable assistance which she receives from abroad, in finished product, raw material, and technical help, notwithstanding the quasi-embargo. The numbers are formidable, and if efficiency were maintained in reasonably like degree, they would be sufficient to deter any thoughtful soldier from advising his government to undertake military operations against them away off here in China.

The Chinese are much better armed than they have been in any of their previous clashes with outside powers, and far better organized and drilled. They know more about the use of modern weapons, and they have never lacked courage when they recognized an occasion for its display. Some of them have exhibited discipline and endurance of a high order in campaign, and although very little fighting generally accompanies their military operations, their advances and retreats and their occupation and abandonment of position, they have shown on more than one recent occasion that they are capable of maintaining a pitched battle with a tenacity which is evidenced by a high percentage of casualties. But their training scarcely extends beyond the duties of the infantry soldiers, and in that it is practically limited to elementary close and open order drill and maneuver, and the use and care of the rifle and the pistol. Their ammunition supply is too limited to permit the target practice necessary for any proficiency in marksmanship, and for the same reason they can not have the training required for familiarizing the detachments with the operation of their automatic arms. It is doubtful if any number of them worth considering could keep a machine gun in action, even if the quality of their ammunition would permit anybody to do so.

Some of the arsenals can manufacture trench mortars, and this simple weapon they can use to some extent; but they do not manufacture field artillery, their supply of modern guns is very limited, and their officers lack the scientific training without which it is impossible to utilize the range and power of this important arm.

Their aviation service is almost nonexistent. They have few planes, still fewer native pilots, and their planes are rarely in the air. They have nothing like the organization and equipment for the constant overhauling and repair which are needed to keep an aviation service going, and they have no means of renewing their supply of planes and parts, except from abroad. They have no dirigible balloons whatever. They have next to no tanks, no gas masks and no gas service, and no means of manufacturing in quantity either the masks or the gas. They have a few motor cars and motor trucks, and they can drive these very well and keep them in reasonable repair, but the number in the entire country is too small for adequate military service, and they have never manufactured any themselves.

China has been overcome and completely taken possession of more than once in her history. The last occasion was the Manchu conquest, in which Peking was occupied in 1644, and a dynasty was set up which ruled the country with absolute power for two and a half centuries. The military advantages which enabled the Manchus to achieve this success were better organization, better fighting spirit, and more robust physique. They had no superiority of weapons. The use of gunpowder had been known in the Orient for several centuries; and in the Occident the matchlock, firing by a burning or glowing match brought in contact with a primed touchhole by a trigger, had been developed to the point of exercising a significant influence on infantry combat.

But in China neither side had many firearms of any kind and both were armed in the main with swords, bows and arrows, and other primitive weapons. In the manufacture of these the Chinese were probably better off than the Manchus, being more advanced in all the arts of civilization. Of course, the Chinese outnumbered the Manchus many times. Notwithstanding the equality of armament and the great inferiority in numbers of the Manchus the latter established a complete rule of force over all China, maintaining it for a number of years; at first by means of armed garrisons stationed at important points throughout the country. But as time went on and obedience became a habit, the Manchu Emperor was accepted as the evident instrument of Heaven, whose favor he enjoyed, in accordance with the usual Chinese acceptance of fate; and the garrisons of "Banner men" fell into desuetude and ultimately degenerated into useless pensioners, a charge upon the public funds.

As far as the military problem of taking control in China is concerned, it ought to be simpler now for any first-class power than it was for the Manchus in the seventeenth century, and for a combination of powers Chinese resistance should present no difficulty whatever, Japan alone has less disparity of numbers than the Manchus had, and her superiority of armament and organization over those of China is far greater. The World War brought home to the man in the street the supreme military value of industrial power. No lesson of the war was more widely inculcated than this one. And in this vital element of military strength China is incomparably farther behind the occidentally civilized world than she was in comparison with her victorious opponent of 1644. She has made some progress, it is true, but it is a bare beginning; she is still hopelessly outclassed.

It is probable that there is no force in China that could stop a single American division in organized military operations, and a force equivalent to 8 or 10 American divisions could dissipate and reduce to military impotence every serious unit in the country, effecting a complete occupation, which could be maintained as long as necessary. The purely military task would be so easy as to justify search for the most benevolent way of performing it.

As to guerilla warfare, in which would be exhibited the universal hostility of an implacable populace, and which would require for its control such diffusion of an occupying force as to augment greatly the numbers needed for regular operations, nothing of the kind would be necessary. The maintenance of such warfare calls for sacrifices and strenuous efforts and a spirit which can be sustained only by resentment against the pressure of injurious tyranny or by an intense patriotism which the Chinese masses do not have.

There is an exotic nationalism of "new China," but Dr. Sun Yat-sen himself has said that his people in general do not possess national feeling, which must be inculcated in them.

The task of arousing it, however, in the face of a beneficient rule which would really consider the interests of the people, would be great, and would have to labor continuously against the Chinese popular disposition to acquiesce in a régime under which they are permitted quietly to pursue their vocations. There is plenty of evidence of the small amount of force which is necessary to put down Chinese uprisings, even where there is a genuine grievance; and with improvement of previously unsatisfactory conditions the native common sense of the Chinese race can be relied upon to make the inculcation of belief in a false grievance too difficult for the continuous success of the agitator. The "Red Spears" and other similar peasant organizations have been a serious annoyance to the armies of

warring militarists in central China; but these people have been harried to near death by the soldiery, their crops and animals taken, their homes looted and their women ill-treated; and in desperation, with nothing left to lose, they have taken to reprisals against their tormentors, of which not the least unfortunate effect is to leave them addicts of the bandit habit for an indefinite time.

A word about the boycott. This has been claimed by Eugene Chen, of Nationalist notoriety, to be an invincible weapon in the hands of his countrymen; and there has been a disposition to admit the claim by foreigners who have been impressed by the effect on the Japanese of the boycott of 1919 against the occupation of Shantung, and by that of 1925–26 against the British of Hong Kong, following the shooting incidents of May 30 and June 23. But these manifestations were directed by organizations of individuals who were probably incited and certainly encouraged by the constituted authorities, and who followed the methods of picketing, punishment, and other forms of violence which have become classical in the coercion of "blacklegs" in labor disputes, both in the East and the West. So that it is impossible to say with what degree of spontaneity the boycotts were sustained. The British of Hong Kong are firmly of the opinion that, if the pickets had been restrained from the confiscation and sale of British goods and the imposition of enormous blackmail upon vessels which visited Hong Kong, making the whole movement a very profitable one for them, and if the Cantonese had not been able to obtain supplies of goods of other nationalities, the keenness of the merchants for trade and of the people for supplies would have made the boycott futile. The possibility of success of a widespread boycott against a power or group of powers effecting an occupation of China is more or less speculative, but the success of an attempt which would be officially discouraged and in which methods of intimidation would be prevented can not be argued from the experience of 1919 and 1925, in which these methods had full play and official sympathy.

There remains to be considered the agency by which intervention might be attempted—the so-called treaty powers. Of these, the ones which have the greatest interest in a stable and well-governed China and which at the same time can contemplate the expense without at once finding it prohibitive are Great Britain, France, America, and Japan. The power which is so situated as to make the job the easiest for her is, of course, Japan; and the one which could best afford to undertake it is America. But we know that the American people would not think of sanctioning such a proceeding, either by their own Government or any other. They would consider it not only morally and ethically wrong and militarily impracticable, on the grounds which I have been examining above, but they would be

distrustful of the spirit in which it would be undertaken and carried through. They would have no confidence in the altruism with which even our own Government would take up a trusteeship of the Chinese people and administer it in the sole interest of the wards as political minors until these could be trained to take over the management of their own estate, and they would be quite certain that shady financiers or even well-intentioned business men naturally solicitous about their own interests would exert such an influence on the administration of China as to give it altogether too much of the character of an exploitation of the Chinese people in the interests of foreigners. Americans would not trust our own public opinion to exert itself in behalf of remote wards.

It is charged by thoughtful Chinese, as well as by their political radicals, that the advantages given to foreigners by the "unequal treaties" are already oppressively used to the economic and political detriment of the Chinese people; and there is an uncomfortable measure of truth in the charge. Friends of China assert that the unjust treatment would be accentuated with the enlarged opportunity for selfishness which would be afforded by complete control, and they are quite sure that there would be no self-imposed restriction of control which would limit it, as it should be limited, to the least degree which would accomplish its purpose and would prompt the greatest possible utilization of native personnel and other Chinese agencies of administration.

There is also an element of the treaty-power population which admits no such duty to the peoples of the uttermost parts of the earth as would call upon them to make the effort and the sacrifice which would be required to free these people from the oppression and the exploitation of their own rulers and to shorten their course toward the consent of the governed. They are impressed by the expense of the undertaking—not believing that better trade conditions would more than return it—and they recoil from the risks and the bloodshed which might be involved. Altruism is all very well, but charity begins at home, and there is such a thing as quixotism. The first duty of the government is to its own people, and the first duty of the people is to themselves—their respective fathers of families already burdened with expenses enough, their mothers and their soldier sons.

Finally there is the difficulty of international cooperation; the mutual jealousies and distrust of the treaty powers, each thinking of its own selfish interests and determined that no other power shall secure such control of China's railways or commercial water routes, or what not, or such influence in the administration of her government as would give an advantage to its own nationals. There are many who contend that these international suspicions would pre-

vent any efficient cooperation in the task of regenerating China, either in her own interest or in that of the intervening powers, and that the powers would still more strongly negative consent to consign the task to any single power. The difficulties which are now encountered in securing accord upon any matter in which the various powers are interested are numerous enough.

It may be that these objections are well taken: that the treaty powers, either jointly or separately, fail to constitute an instrumentality of sufficiently high class for the performance of such an advanced duty as the extension to politically incompetent peoples of the benefits of the device of trusteeship. Although this device is the best that statesmanship has worked out for the protection and the tutelage of the immature, within the state, it is quite possible that the world is not yet good enough for the safe recognition of the existence of the national minor. But in that case it were best that we should recognize the true reason for pursuing the "hands-off China" policy. It is not that it would be ethically wrong or practically impossible to do otherwise but that we can not trust ourselves or our neighbor with the delicate duty of laying a kindly hand on the shoulder of a backward nation and guiding it with firmness along the trail which we know because we have been over it.

Chinese industry, thrift, intelligence, eagerness to learn, hospitality to Western material and political civilization, are such as to afford abundant encouragement to the belief that a period of tutelage need not be long if only a fair start could be given to an evolutionary development of the power of the governed. And for a civil leadership the native intelligentsia—some of it highly educated—affords a very fair amount of fine and worthy personnel. But the start is held back, and a revolutionary character is forced upon the development by the inability of anyone to invent an argument which would appeal to the possessor of arbitrary power as a reason why he should voluntarily accept, and even cultivate, a restriction of his power in the interest of those under his rule. The militarist naturally prefers to fight for his preferential position as long as he can make war personally profitable.

It may be that we occidentals can not do anything in the premises. But it is a pity if that is so. And, at all events, let us not make a merit of refusal to lend a hand to free a floundering people from cruel exploitation by the unrestrained human nature of their native rulers, because, singly or collectively, our nations are neither fit nor willing to do the job.

NOTE.—The Editor has no intention of debating with one so well informed of the subject of this article as is General Crozier. But one of the chief merits of the article is that it is provocative of serious thought on the question—"What shall be our attitude toward

and how can we best help China?" With this in mind, and as a supplement to General Crozier's suggestions, there are submitted below certain considerations which it is believed might also illuminate this matter and aid in answering the fundamental question just stated.

First. We must, if we are to be practical, recognize that the question of our intervention in China, as long as our citizens and their property are not threatened, is more or less of an academic one. As General Crozier has stated, "the American people would not think of sanctioning such a procedure, either by their own Government or any other." The latter part of this statement, which is also certainly assumed to be absolutely true, would have the possible effect of forcing us into war with any intervening power—should there be such a power—so strong is the sentiment of our people for "hands off of China" and so distrustful would we be of the pronounced altruistic aims of any other intervening power. And we can well assume that other powers would be equally as distrustful of us were we to do the intervening. Hence the only kind of intervention even remotely possible would be a joint one of, for instance, the United States, Great Britain, and Japan.

Second. In addition to the practical impossibility for domestic reasons of our undertaking even such a joint intervention, we must remember that Russia, and probably France and Italy and other nations, would not be likely to stand aside and permit such intervention. And the three powers would certainly not care to associate with the Soviet Government in such a venture. Furthermore, the more nations there were participating in an intervention the more complicated the resulting situation would be until it would become so dangerous, because of the probable resulting rivalries and suspicions, that it would be fraught with the possibility of a cataclysmic war between the intervening powers. History has shown that condominium government or control is anything but satisfactory, except in remote regions of the world where the governments concerned have no vital interests at stake. For example, the New Hebrides (under a British-French condominium) has had, it is believed, a fairly satisfactory government; but on the other hand, the history of joint control over Tangier has been one of continual dispute, disruption, suspicion and uncertainty. And yet the problem of Tangier would be almost as nothing compared with that of a joint administration of China. Paradoxically, but none the less true to human nature, history would seem to show that whereas various states may unite on a satisfactory basis for prosecuting a war and unity can live on the hates engendered thereby, yet upon the coming of peace, or when they unite for some supposedly charitable action against another State, the eventual result is almost always intense friction, if not war between

the erstwhile allies. It would seem that all the important nations of the world have so much at stake in China that in the light of history and contemporary facts, any joint intervention would forebode the most tremendously serious consequences.

Third. But assume that our people could be brought to cooperate in a joint intervention and that the technical and administrative details were allocated and solved between the intervening powers, what would be our situation in reference to our professed aims? Presumably we would be taking the step in the interest of the Chinese people, hoping, of course, to profit by any betterment accruing to them. General Crozier intimates that the Chinese would probably acquiesce in such a benificent rule and that the period of tutelage need not be long. Unfortunately, history does not seem to support such theories. All peoples have shown a disposition to be most painfully unappreciative of the announced altruistic efforts on their behalf by other peoples. And when these efforts take the form of armed intervention, the nation which is the object of the intervention is not only unappreciative but usually resists such intervention by force of arms. And the significant part of the matter is that such resistance is not isolated and disjointed but usually consists of a veritable united uprising of the people against the would-be militant missionaries. It would seem to be a characteristic of all bodies politic that, while they may have internal disruptions which produce internal chaos, yet, let a foreign nation endeavor to intervene to remedy the chaos and the entire body unites in nationalistic opposition which, for the time being, drowns internal dissention. Surely the blunders of allied intervention in France and Russia during their periods of chaos have taught us something about national psychology. Of course, on the other hand, the answer to this would be that Chinese and western psychology are so fundamentally different that the examples and lessons found in the history of the latter can not be applied to the former. But is there anything other than theoretical deductions to support this contention? Which is going to decide—history or an abstract analysis of character?

Fourth. It was mentioned that historically nations would seem to be painfully unappreciative of announced altruistic efforts on their behalf by other peoples. More than this, history also shows that long after the period of intervention has passed the thought of such action rankles in the breasts of the people of the nation which was the subject of the intervention. Their sense of injured pride alone seems to make it impossible for them to forget. Now one effect, not the least important, is upon trade. More important effects might be smoldering political hatred, or open alliance with the enemies of the intervening state or states. If we were to cooperate in such an intervention, not unlikely nor entirely unjustly, we would hope to profit indi-

rectly by the venture. But, in the light of what has just been said, it would seem that, in intervening, we would defeat our purpose and engender in the Chinese political and commercial animosity which would take years to subside.

Fifth. Such an intervention, whether single or joint, would probably constitute the first step in a great war between the west and the east. Faint rumblings of such a struggle have already been heard in India, East Indies, China, etc. These rumblings have been assisted by Russia, it is true, but, nevertheless, there is something deeper there than the mere wild theories of Moscow. It would seem to be the first and faintest breath of a new nationalistic and self-conscious spirit, which, if developed into a gale, might require a tremendous and fundamental adjustment of relations between the west and the east. There would probably be no better way of fanning such a gale than by a joint and largely western intervention in China.

For the reasons given above the editor submits the suggestion that not only is intervention in China not even remotely possible but that such action would be the height of folly.—Ed.